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MANAGEMENT LEVERS THAT DRIVE SERVICES CONTRACTING SUCCESS

by

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December 2013

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Contracting for services in the Department of Defense (DoD) has grown over the last 21 years. This growth in dollars spent has brought increased political attention and scrutiny. DoD has responded to problems such as contract mismanagement and ill-defined requirements by improving service acquisitions, but it still has problems. The problems could be from a lack of standard definition for success. Since contract success and failure is recorded through the Contract Past Performance Assessment Reporting System (CPARS) this information is used for the proxy definition for success. This definition was used to address the following questions: (1) Do the types of services being acquired affect the success of a service contract, (2) Do the contractual amounts affect the success of a service contract, (3) Does the level of competition used affect the success of a service contract, (4) Does the contract type affect the success of a services contract. This report examined 715 CPARS entries. The findings revealed that contractual amounts and level of competition affect the success of a service contract. The findings also revealed that the failure rate in CPARS is lower than expected. From these findings, the report presents a discussion of the results and managerial implications, and recommends an alternate method in completing CPARS data.

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MANAGEMENT LEVERS THAT DRIVE SERVICES CONTRACTING SUCCESS

ABSTRACT

Contracting for services in the Department of Defense (DoD) has grown over the last 21 years. This growth in dollars spent has brought increased political attention and scrutiny. DoD has responded to problems such as contract mismanagement and ill-defined requirements by improving service acquisitions, but it still has problems. The problems could be from a lack of standard definition for success. Since contract success and failure is recorded through the Contract Past Performance Assessment Reporting System (CPARS) this information is used for the proxy definition for success. This definition was used to address the following questions: (1) Do the types of services being acquired affect the success of a service contract, (2) Do the contractual amounts affect the success of a service contract, (3) Does the level of competition used affect the success of a service contract, (4) Does the contract type affect the success of a services contract. This report examined 715 CPARS entries. The findings revealed that contractual amounts and level of competition affect the success of a service contract. The findings also revealed that the failure rate in CPARS is lower than expected. From these findings, the report presents a discussion of the results and managerial implications, and recommends an alternate method in completing CPARS data.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACC	Air Combat Command
AETC	Air Education and Training Center
AMIC	Acquisition Management and Integration Center
AO	Assessing Official
AOR	Assessing Official Representative
BRAG	Business Requirement Advisory Group
COR	Contracting Officer Representative
CPARS	Contractor Performance Assessment Reporting System
FAR	Federal Acquisition Regulation
FDO	Field Directorate Offices
FSC	Federal Service Code
GFP	Government Furnished Property
IGE	Independent Government Estimate
IT	Information Technology
LPTA	Lowest Price Technically Acceptable
MICC	Mission Installation Contracting Command
NDAA	National Defense Authorization Act
OFPP	Office of Federal Procurement Policy
PM	Program Manager
PPI	Past Performance Information
PPIRS	Past Performance Information Retrieval System
PSC	Product Service Codes
PWS	Performance Work Statement

QAE	Quality Assurance Evaluator
QASP	Quality Assurance Surveillance Plan
R&D	Research and Development
RFP	Request for Proposal
SOW	Statement of Work
SSE	Source Selection Evaluator

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I. INTRODUCTION

A. BACKGROUND

Historically, the Department of Defense (DoD) has been the single largest consumer of services among government agencies (Government Accountability Office [GAO], 2003). In 1990, the Army's spending alone on services was $13 billion and grew to $74 billion by 2010 (Ellman, Livergood, Morrow, & Sanders, 2011). From 2000 to 2007, contract-for-service spending remained close to a level percentage of total DoD spending until taking a small dip in 2008 (Ellman et al., 2011). Over the past 21 years, contracting-for-service spending has grown in relation to DoD spending on contracting for products, and was the fastest growing area for DoD contract spending at a growth rate of 6.1% (Ellman et al., 2011; see Figure 1).

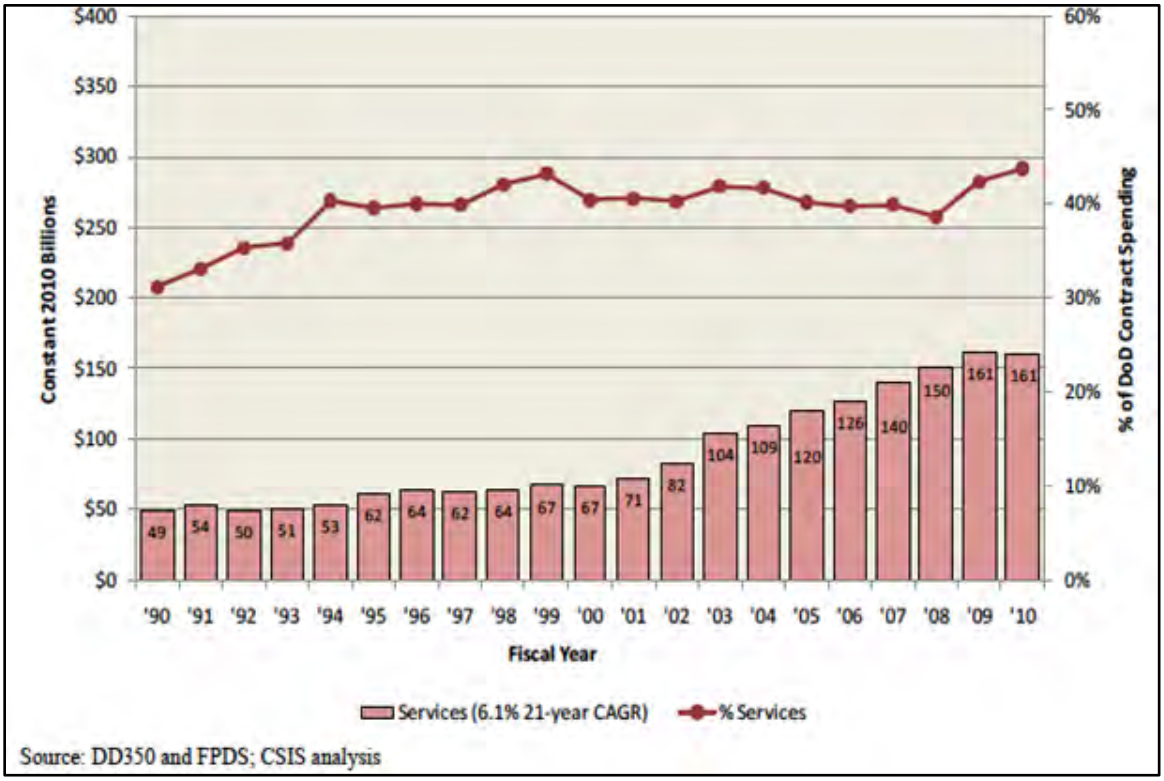

Figure 1. Service Contract Spending (From Ellman et al., 2011)

In total spending terms, from 1990 to 2010, with the exception of 2008, the Army's spending on contracts for services has exceeded the amount of spending on contracting for products (Ellman et al., 2011). Figure 2 shows how Army contracting for services has increased at a much higher rate than Army contracting for products during this period. After September 11, 2001, the Army's total contract spending increased at the fastest rate it had been in 21 years (Ellman et al., 2011). Spending grew at 139% for services, products, and research and development (R&D) (Ellman et al., 2011). After 2008, contracting for products decreased significantly while contracting for services has increased. This growth in size and scope of the DoD's expenditures on services has resulted in increased political attention in the last few years. This increased political attention has allowed contracting for services to be highlighted and scrutinized.

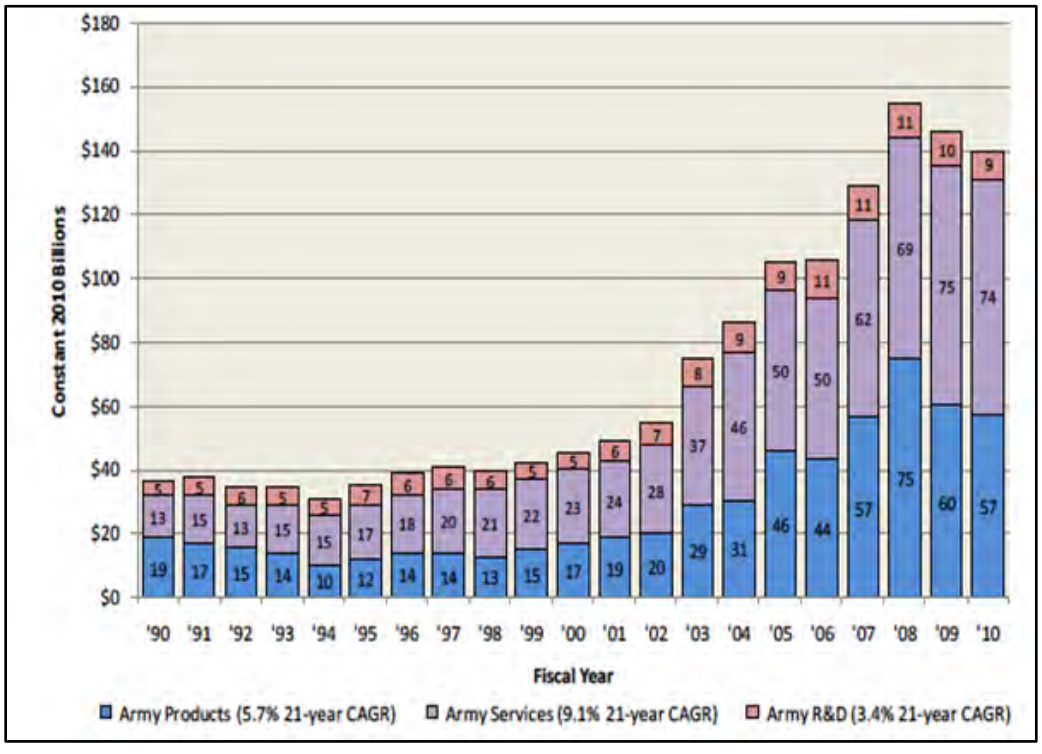

Figure 2. Army Spending on Products, Services, and R&D (From Ellman et al., 2011)

Most analysts argue that contracting for services is more complex than contracting for products or goods (Church & Schwartz, 2013). This difference in complexity is because of vast differences between the two forms of contracting. According to Federal Acquisition Regulation (FAR) Part 37 (2013), a contract for a service is a contract in which the contractor performs a recognizable task rather than furnishing an end item of supply. Apte, Apte, and Rendon (2010) highlighted how services and products contain different characteristics. These characteristics include "intangibility of service output, co-production, simultaneity of production and consumption, the inability to store services, and the complexity in the definition and measurement of services" (Apte, et al., 2010, p. 4). Chairman of the Defense Science Board, Jacques Gansler, published a memorandum identifying five findings in the board's assessment of service acquisitions. One of the findings was that product acquisition is fundamentally different than the acquisition of services. Gansler stated that most current regulations, policies, training, standards, education, and management structures are set up to optimize product acquisition and only a few focused on the optimization of service acquisition (Gansler, 2011).

These differences have created problems with contracting for services. The DoD Office of Inspector General has stated that the DoD's contracting for services is not managed effectively and that the "current process is decentralized, insufficiently rigorous, and unreliable" (GAO, 2003, p. 1). In addition, the DoD Inspector General (IG) has issued 142 reports during Fiscal Year (FY) 2003 to 2008 that relate to the acquisition and contract administration process (Burton, 2009). These reports listed deficiencies that were grouped into 12 categories ranging from completeness of acquisition support data to material internal control weaknesses (Berkheimer, Burton, Ford, Johnson, Jolliffe, Mehlman, … Tucker, 2008). In testimony before the Subcommittee on Technology and Procurement Policy in 2001, David Cooper, GAO director of acquisition and sourcing management, identified several problems with contracting for services (*Contract Management*, 2001). One of the problems was

that contracting officials were not using prior experience of services acquisitions to help define requirements more clearly. This led to the use of cost reimbursement contracts, which placed the government at risk for cost overruns, "despite 39 years of past experience purchasing the same services" (*Contract Management*, 2001, p. 6).

In 2006, David M. Walker, serving at the time as comptroller general of the United States, testified before the Subcommittee on Appropriations (*DoD Acquisitions*, 2006). Walker testified that one of the problems identified by GAO with services acquisition was oversight of contracts. He testified that out of 90 service contracts reviewed by GAO to investigate acquisition and contracting issues, nearly a third had insufficient contract oversight. His testimony highlighted the idea that the contracting office's priority is to award contracts and not to ensure personnel are properly trained to conduct oversight duties (*DoD Acquisitions*, 2006). Without the proper number of trained personnel for contract oversight and the use of poor contract arrangements, the government runs the risk of not getting the services it requests in a timely manner and of paying more than is necessary (GAO, 2013b). In his memorandum, Gansler (2011) also identified this weakness in his findings. He stated that the workforce needs additional training, guidance, and experience, and that it is inadequately prepared to acquire and execute service acquisitions (Gansler, 2011). Because of these problems, contract management has been listed on GAO's High Risk Series since 1992 and has allowed 142 reports from the DoD IG on acquisition and contract administration deficiencies in five years (GAO, 2013b; Berkheimer et al., 2008).

In response to some of the problems identified, the DoD has made advances to improve service acquisition. Some of these changes aligned with Gansler's recommendations, and they are enforced by the Better Buying Power (BBP) 2.0 memorandum from the Undersecretary of Defense for Acquisition, Technology, and Logistics (USD [AT&L]) Frank Kendall. An example of this included the designation of a senior manager for services acquisition in each

DoD component (GAO, 2013b). BBP 2.0 also mandated that each component adopt a service market segmentation. This forced every component in DoD to adopt a standardized approach for categorizing spending on services to assist with informed decision-making (GAO, 2013b).

B. PROBLEM STATEMENT

Even with the advancements in service acquisitions, there are still problems with the way service contracts are managed. These problems could be related to the fact that there is not an agreed upon definition of a successful service contract across the DoD (Hagan, Spede, & Sutton, 2012). The lack of an agreed upon definition of success has made it difficult to measure a service contract and has made managing and improving services aquisition increasingly difficult.

C. PURPOSE

The purpose of this research is to identify variables in the service contracting process that promote successful service contracts. The objective of this research is to build on the understanding and knowledge that has been generated in past research and use this knowledge to advance the acquisition of service contracts. This research examines how specific variables affect the success of a service contract in order to improve services acquisition management in the DoD.

D. RESEARCH QUESTIONS

The primary question addressed in this research is, what variables drive successful service contracts? This research focuses on four research questions that explore the variables that result in successful service contracts. The variables selected to answer the research questions are the types of service, contractual amounts, level of competition, and contract type. This research focuses on answering four specific research questions:

1. Do the types of services being acquired affect the success of a service contract?
2. Do the contractual amounts affect the success of a service contract?
3. Does the level of competition used affect the success of a service contract?
4. Does the contract type affect the success of a services contract?

The answers to these questions determine whether or not a relationship exists between these four service contract variables and the success of the contracts. This information will prove valuable in identifying variables that ensure a successful service contract. The next section will discuss the methodology of this research.

E. METHODOLOGY

This research will be performed by conducting a literature review of the service contract management process, the contractor performance assessment reporting system (CPARS), stakeholder theory, and previous studies of service acquisition management. The DoD CPARS database will be accessed to obtain data on service contracts for specific service types. Statistical analysis will be conducted on the CPARS data to draw conclusions on how certain variables affect the success of service contracts. The next section discusses the benefits and limitations of this research.

F. BENEFITS AND LIMITATIONS

The purpose of this research is to identify variables in the service contracting process that promote successful service contracts. The benefits of this research include building on knowledge gained from previous research on service contracting. It will be the first empirical study linking contracting success to variables involved in contracting for services. This research will give empirical data showing how these variables affect service contracting. The research will identify variables that relate to the success of service contracting.

While the purpose of this research is to identify variables in the service contracting process that promote successful service contracts, it is not without its limitations. The research limitations include the analysis of contracts only selected from the Army, contracts only submitted by Mission Installation Contracting Commands (MICCs), and contracts only from five MICC offices. The second limitation is that only contracts that relate to four selected service types were used for the research. The final limitation is the use of CPARS for a proxy definition of success and problems that have been identified with the CPARS process.

The first limitation is the use of only Army contracts, only MICC contracts, and only contracts from five MICC offices were chosen for the contracts to be pulled from and analyzed. This limitation leaves a large area of contracting from which data was not gathered and analyzed.

The second limitation is that only contracts related to four selected service types were chosen to be analyzed. These service types were R, J, S, and D. R-type contracts are contracts for professional, administrative, and management support services. J-type contracts contain maintenance, repair and rebuilding of equipment type services. S-type contracts are contracts for utilities and housekeeping services. D-type services are for automatic data processing and telecommunications services (Apte, Apte, & Rendon, 2012). This limitation leaves some services from which data was not gathered and analyzed.

The final limitation in this research is the use of the CPARS assessment as a proxy for contract success, and the problems that have been identified with the CPARS process. The use of the CPARS assessment as a proxy for contracting success allows for stakeholders to apply their definition of success to their contract. This definition may be in conflict with another stakeholder involved in the contracting process. This area is covered in more detail in the literature review in Chapter II. The final part of this limitation is the problems that have been identified with CPARS. This limitation includes agencies not reporting into the database at all or not reporting in a timely manner. It also includes the

limitations of agencies reporting contract past performance inaccurately into the federal database. This limitation is also discussed more thoroughly in Chapter II.

G. SCOPE AND ORGANIZATION OF RESEARCH

This report is organized into five chapters. Chapter I contains the background information, the problem statement, the purpose of this research, research questions, research methodology, benefits and limitations of the report, and the scope and organization of this research. Chapter II contains the literature review of the service contract management process, the CPARS system, stakeholder theory, issues regarding CPARS, and previous studies that have been conducted on service contract management. Chapter III provides a methodology of how the research was conducted. It describes how the past performance information was gathered, categorized, and analyzed. Chapter IV reveals the results of the analysis and the implications for DoD service acquisition. Finally, Chapter V provides a summary and conclusions, and addresses areas for further research.

H. SUMMARY

This chapter discussed the background information, the problem statement, the purpose of this research, research questions, research methodology, benefits and limitations of the report, and the scope and organization of this research. Chapter II contains the literature review of the service contract management process, the CPARS system, Stakeholder Theory, issues regarding CPARS, and previous studies that have been conducted on service contract management.

II. LITERATURE REVIEW

A. INTRODUCTION

The purpose of this chapter is to provide an overview of the DoD's service acquisition process and the current structure for acquiring these services. It begins with an examination of the current service acquisition process and the responsibilities of the stakeholders involved. Additionally, this chapter provides a discussion of how a contractor's past performance is recorded in the Contractor Performance Assessment Reporting System (CPARS) for use in future source selections and the problems that have been identified with the process. It then discusses how success may differ between each stakeholder and the impacts that these differences have on service contracts. Finally, the chapter concludes with a discussion of related research that has built a foundation for this project with a look at six previous studies on services acquisition management in the DoD.

B. SERVICE CONTRACT MANAGEMENT PROCESS

The service contract management process is distinctly different from the product contract management process. Apte et al., (2010) highlighted how services and products contain different characteristics. These characteristics include "intangibility of service output, co-production, simultaneity of production and consumption, the inability to store services, and the complexity in the definition and measurement of services" (Apte et al., 2010, p. 4). Because of these unique characteristics, services acquisition must follow a unique process.

The service acquisition process begins with the identification of a service requirement that is essential for the organization to fulfill its mission (DoD, 2012). The acquisition process includes a planning phase, development phase, and execution phase. The process results in a service that is performed in a prescribed amount of time and that fulfills the mission requirements (DoD, 2012). The service acquisition process consists of seven steps, which are subtasks to

the three phases introduced previously and shown in Figure 3: plan, develop, and execute (DoD, 2012). Steps 1–3 occur during the planning phase. Steps 4 and 5 take place during the development phase, and Steps 6 and 7 take place during the execution phase (DoD, 2012).

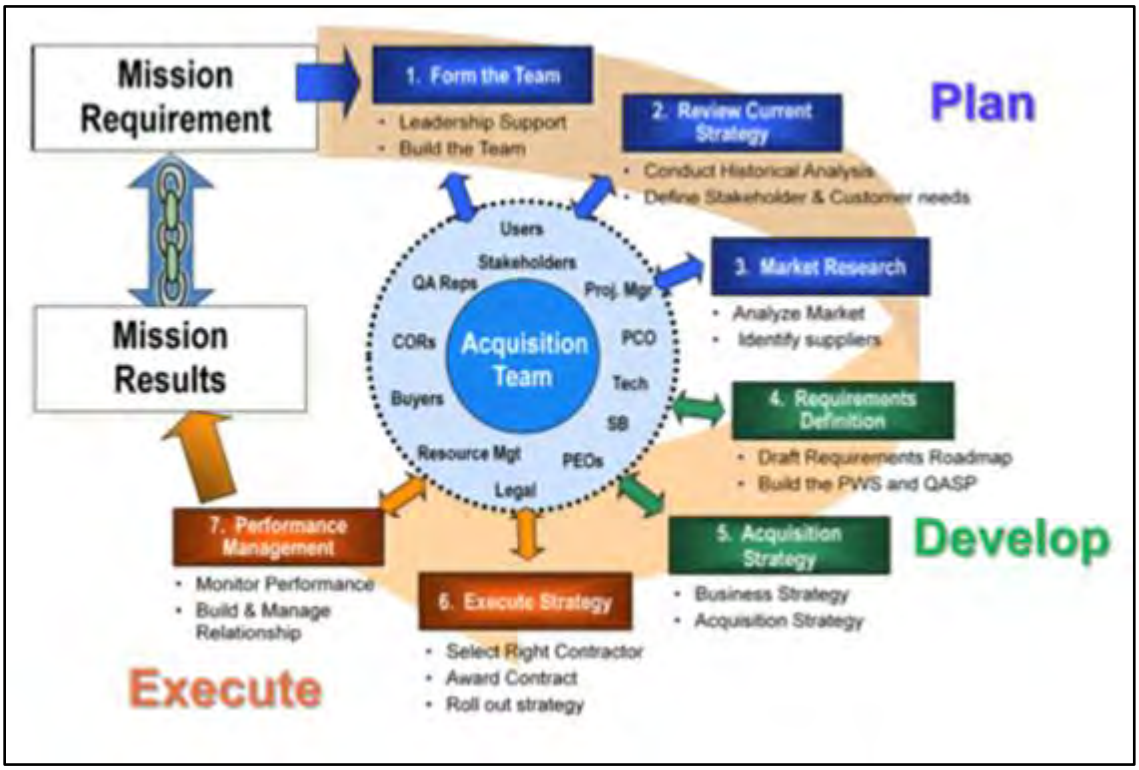

Figure 3. The Services Acquisition Process (From DoD, 2012)

The Planning Phase

The planning phase is the first phase of the service acquisition process and consists of Steps 1, 2, and 3 (DoD, 2012). During this phase, the acquisition team is formed and receives guidance from their associated leadership. The acquisition team reviews current service contracts and the marketplace to create a clear picture of the specific needs the service contract must fulfill. (DoD, 2012).

Step 1: Form the Team

The acquisition team is formed during Step 1 of the service acquisition process (DoD, 2012). The purpose of this step is to ensure that the acquisition team is formed and that the team is provided the proper resources to see the contract to completion. This step is further broken down into six sub-elements, as seen in Figure 4 (DoD, 2012).

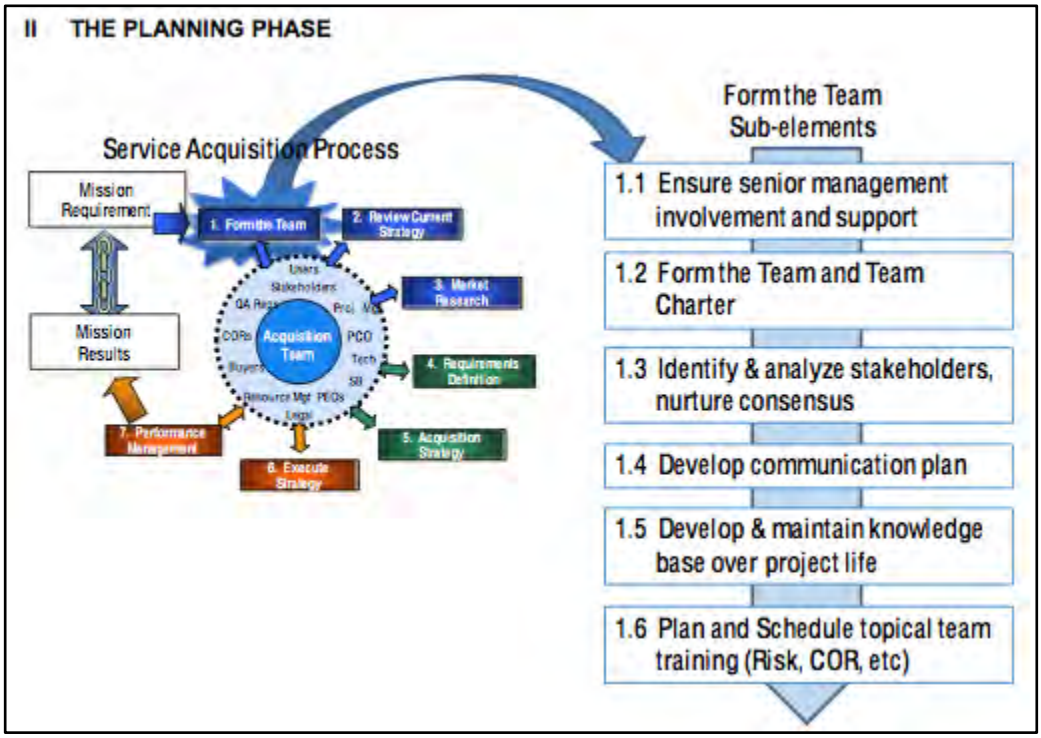

Figure 4. Planning Phase (From DoD, 2012)

These six sub-elements ensure the formation of the acquisition team (DoD, 2012). This begins with agency leadership support in acquiring the required service. The acquisition team is then officially formed and assigned individual responsibilities. The acquisition team consists of Contracting Officer, Program Manager, Contracting Officer Representative, Finance Manager, and Customer/ End User. The following paragraphs explain the roles of the acquisition team members.

Contracting Officer

The FAR defines a contracting officer as an individual with responsibility and authority to obligate the government and enter into, administer, terminate, and properly close out contracts (FAR, 2.101). Contracting officers pursue the interest of the United States by ensuring the proper performance of all contracts and enforcing their compliance with the statutory requirements of public policy. A contracting officer's duties are not limited to the solicitation and award of a contract. The contracting officer retains contracting officer authority and the associated supervisory responsibilities throughout the life cycle of the contract (Apte & Rendon, 2007). Some DoD contracting officers are civilian professionals serving in 1102 positions. These 1102 civilian employees "include positions that manage, supervise, perform, or develop policies and procedures for professional work involving the procurement of supplies, services, construction, or research and development using formal advertising or negotiation procedures" (Office of Personnel Management [OPM], 1983, p. 3). A full description of the duties of the contracting officer can be found in FAR 1.602–2.

Program Manager

The program manager is responsible for overseeing the acquisition team and is primarily responsible for the cost, schedule, and performance of the government procurement. Program managers make project decisions and lead project execution through effective collaboration. They maintain continuous communication through integrated project processes (Apte & Rendon, 2007). The program manager understands the need of the agency leads the market research effort; and oversees the award, execution, and closeout of the program. Previous research indicates that in many service acquisitions, a project manager or project team is not assigned and the contracting officer assumes the responsibilities of the project manager or project team leader (Apte & Rendon, 2007).

Contracting Officer Representative

The contracting officer representative (COR) is not a contracting-related position and does not have the same statutory responsibilities as the contracting officer and program manager. The COR is a subject matter expert who uses technical expertise to supervise the execution of a contract and provides periodic updates to the contracting officer. The AOR acts as the “eyes and ears” of the contracting officer and is a vital part of the acquisition team (FAR, 2013, Part 2). The COR does not hold a warrant and does not have the authority to award, alter, or terminate contracts on behalf of the U.S. government. A detailed description of the responsibilities of the COR can be found in FAR 1.604.

Finance Manager

The finance manager serves as a financial advisor to the acquisition team. Financial managers work to ensure that the acquisition team is operating within the constraints of government authorizations and appropriations in order to prevent a violation of fiscal law (DoD, 2012). This ensures that the acquisition team has appropriated funds available for the contract and complies with the purpose, time, and amount for the contract in accordance with statutory requirements.

Customer/End User

The customer serves as the client to the acquisition team. The customer must fully understand the agency’s needs and be able to clearly convey those needs to the acquisition team. This understanding allows the acquisition team the ability to create a cohesive requirements document (DoD 2012).

Each of the service contract stakeholders have their individual definition of a successful service contract, which often puts them in conflict with each other. This is discussed further in the stakeholder theory section.

With responsibilities allocated, the process begins to move toward understanding the stakeholders and the results they desire. During this part of

the process, individual stakeholders' desires are consolidated to ensure that the proper services are acquired. After the stakeholders are in agreement with each other, the acquisition team develops a plan for communicating with the stakeholders and the frequency of that communication. The final parts of this step involve the creation of a plan to document the information gathered in subsequent steps and to identify training requirement mandates for the acquisition team members (DoD, 2012).

Step 2: Review Current Strategy

Step 2 of the service acquisition process is to review the current acquisition strategy being conducted (DoD, 2012). This process involves analyzing the requirements and desired results of current service contracts and attempting to draw parallels to the service being acquired. In this step the acquisition team attempts to gather all the information necessary to develop a list of the exact requirements needed by the service. This step contains 10 sub-elements, as seen in Figure 5 (DoD, 2012).

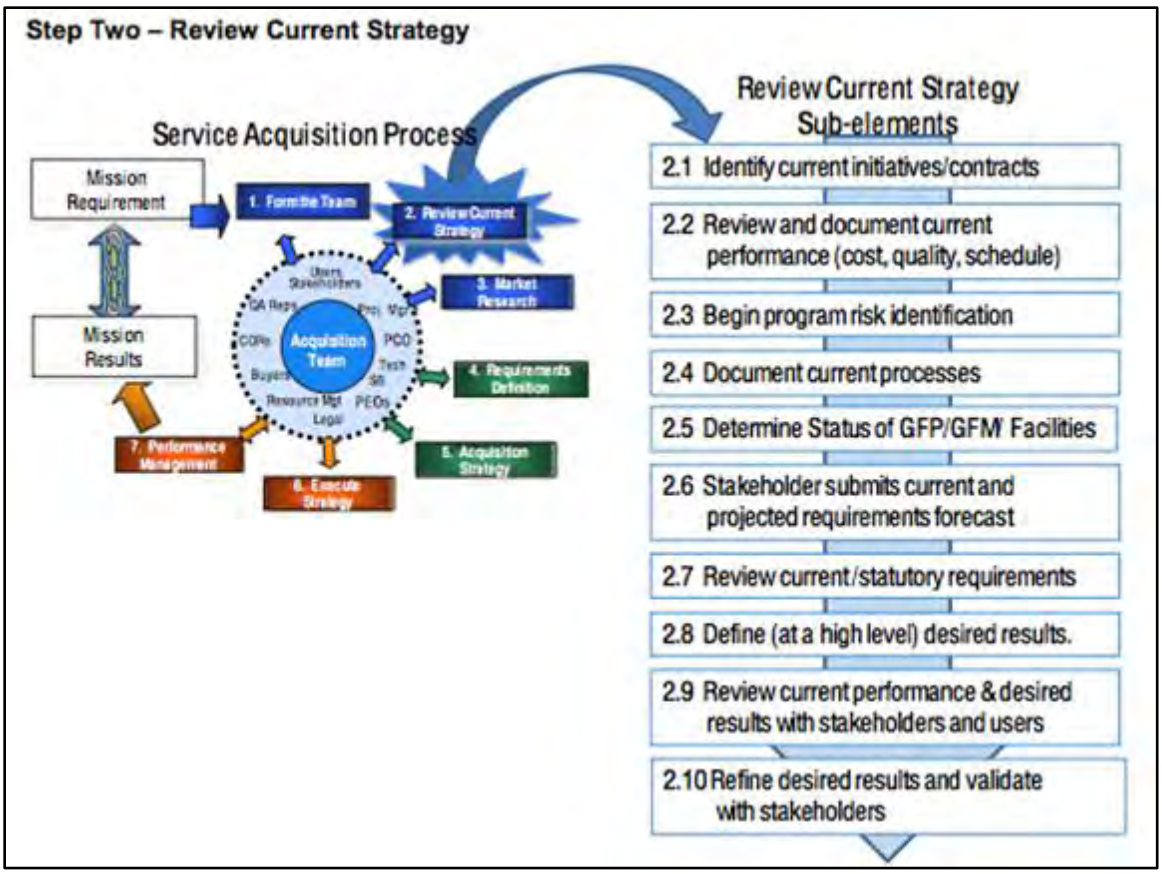

Figure 5. Review Current Strategy (From DoD, 2012)

These 10 sub-elements assist the acquisition team in developing a thorough understanding of the service requirements (DoD, 2012). This process begins with identifying current service contracts that are similar to the requirements. These services are then analyzed to gain a better understanding of the service requirements (DoD, 2012). The acquisition team determines the risks that require mitigation and documents the information gathered thus far (DoD, 2012). The acquisition team also determines whether government furnished property (GFP) is used in the current acquisition and determines whether it is needed for their service (DoD, 2012). The final steps of this process involve an attempt to add a greater level of detail to the desired outcomes and to ensure the stakeholders agree with the acquisition team (DoD, 2012).

Step 3: Market Research

"Market research is required by FAR Part 10 and" is essential for the successful implementation of a service contract (DoD, 2012, p. 18). This step involves gathering price and performance information from the marketplace associated with the service (DoD, 2012). A detailed understanding of the market assists the acquisition team in acquiring the proper service and avoids wasting taxpayers' dollars. There are seven sub-elements in this step, as shown in Figure 6 (DoD, 2012).

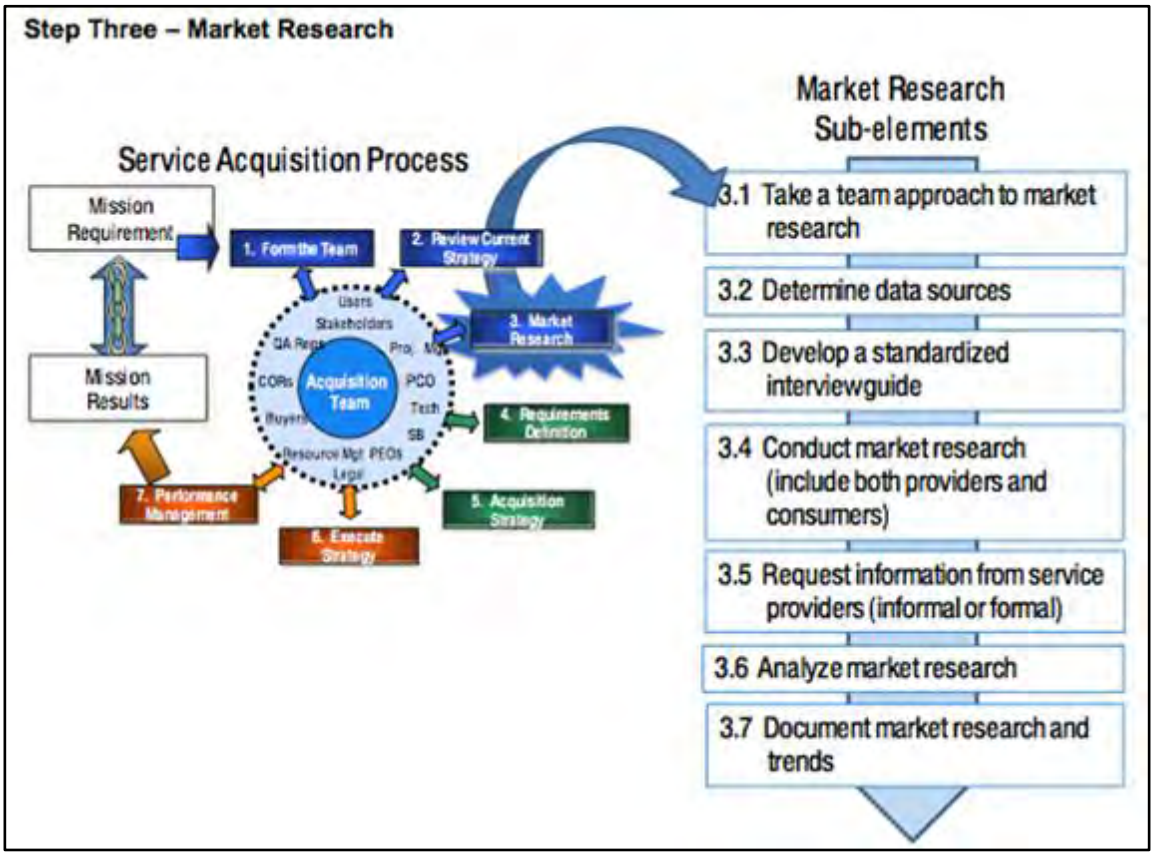

Figure 6. Market Research (From DoD, 2012)

These seven sub-elements ensure that the acquisition team has a detailed understanding of current market practices in the area of the service being acquired (DoD, 2012). The process begins with dividing the information needed

among the acquisition team members and determining where the team can gather that information. The information gathered must be collected in similar formats across the acquisition team so that it can be compiled and disseminated appropriately. The acquisition team members can begin to contact service providers after determining the information that is needed. The gathered information is then analyzed and disseminated throughout the team. The final step of this process is to document the collected market research, as dictated in the FAR (DoD, 2012).

The Development Phase

Steps 4 and 5- Requirements Definition and Acquisition Strategy- occur during the development phase (DoD, 2012). This phase requires a complete understanding of the service objectives and how the service will be funded (DoD, 2012). During the development phase the acquisition team gathers information from the industry in an effort to streamline the acquisition process and avoid potential acquisition problems. The final part of this process involves putting all the gathered information together to create an acquisition strategy that capitalizes on the information gathered in an effort to obtain the correct service for the government (DoD, 2012).

Step 4: Requirements Definition

Step 4 in the service acquisition process involves compiling the information gathered thus far and developing a specific list of all the requirements for the service contract (DoD, 2012). This step specifically involves taking a detailed look at the individual requirements and understanding how they interact with each other. This step is broken into the eight sub-elements shown in Figure 7 (DoD, 2012).

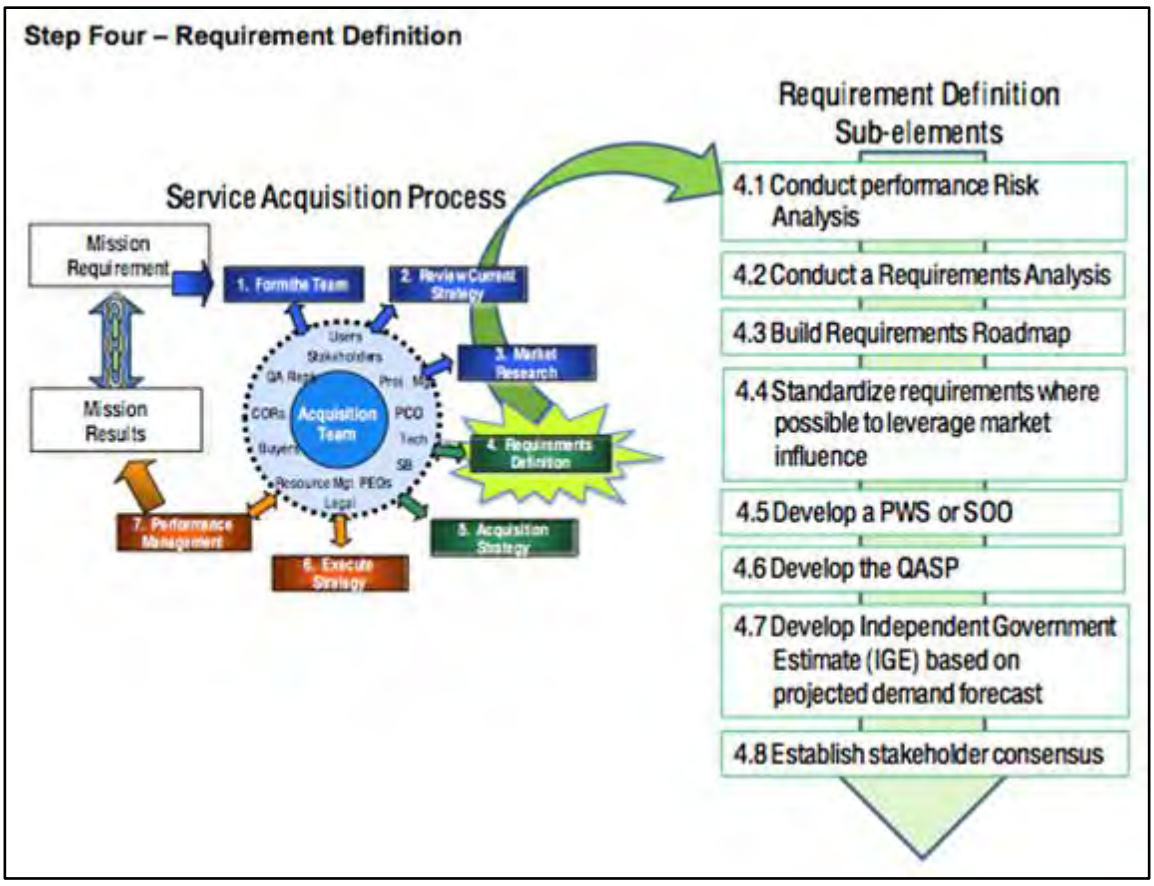

Figure 7. Requirements Definition (From DoD, 2012)

These eight sub-elements facilitate a complete understanding of the requirements that the service is going to fulfill, along with the associated costs (DoD, 2012). The process begins with a detailed understanding of the risks in acquiring the service. Most service acquisition projects are analyzed in terms of the likelihood of a given risk occurring and its associated severity. This information is often compiled on the DoD Risk Analysis Model shown in Figure 8 (DoD, 2012). Beginning with high-risk areas, risk of contract failure or delay has to be identified and mitigated appropriately (DoD, 2012).

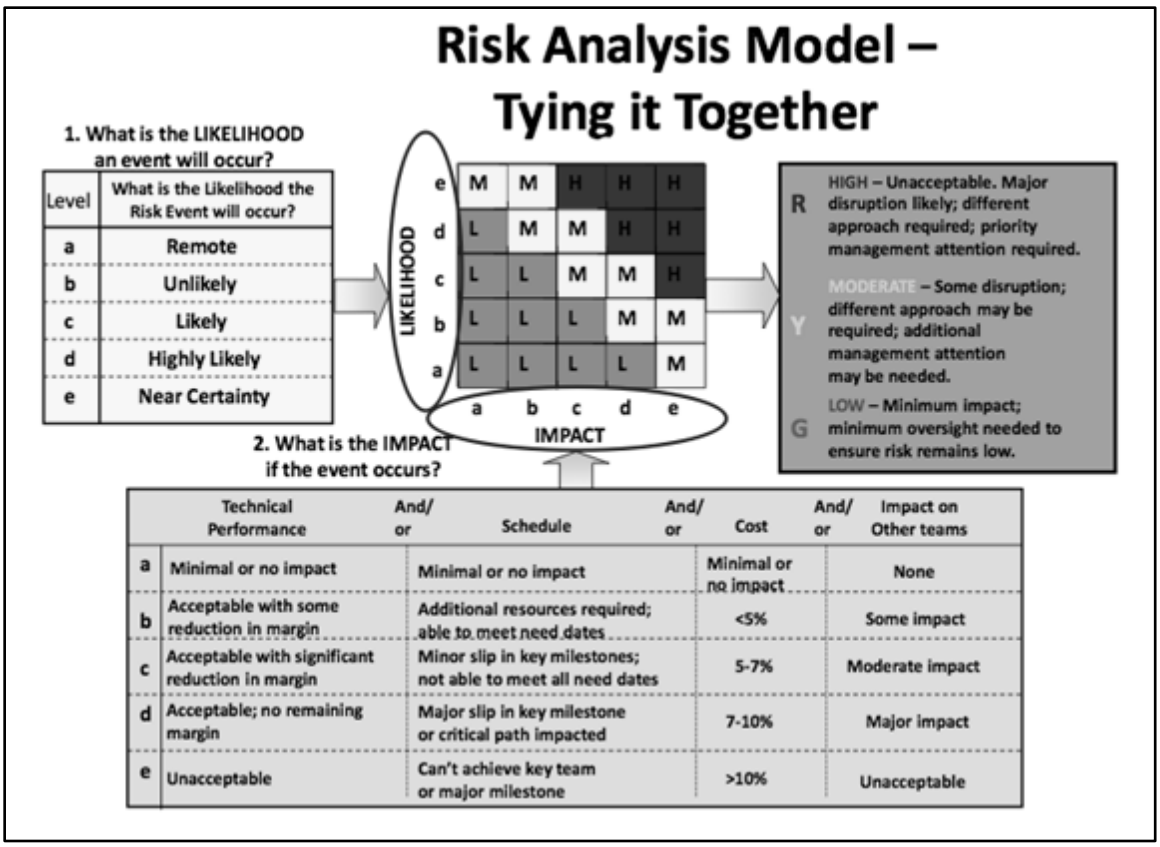

Figure 8. Risk Analysis (From DoD, 2012)

Once the risks are analyzed, the acquisition team begins to create a document describing how to fulfill and prioritize the service requirements (DoD, 2012). One of the tools used to complete this task is the requirements roadmap tool shown in Figure 9. The requirements roadmap clearly defines and prioritizes the service requirements through the duration of the acquisition process (DoD, 2012).

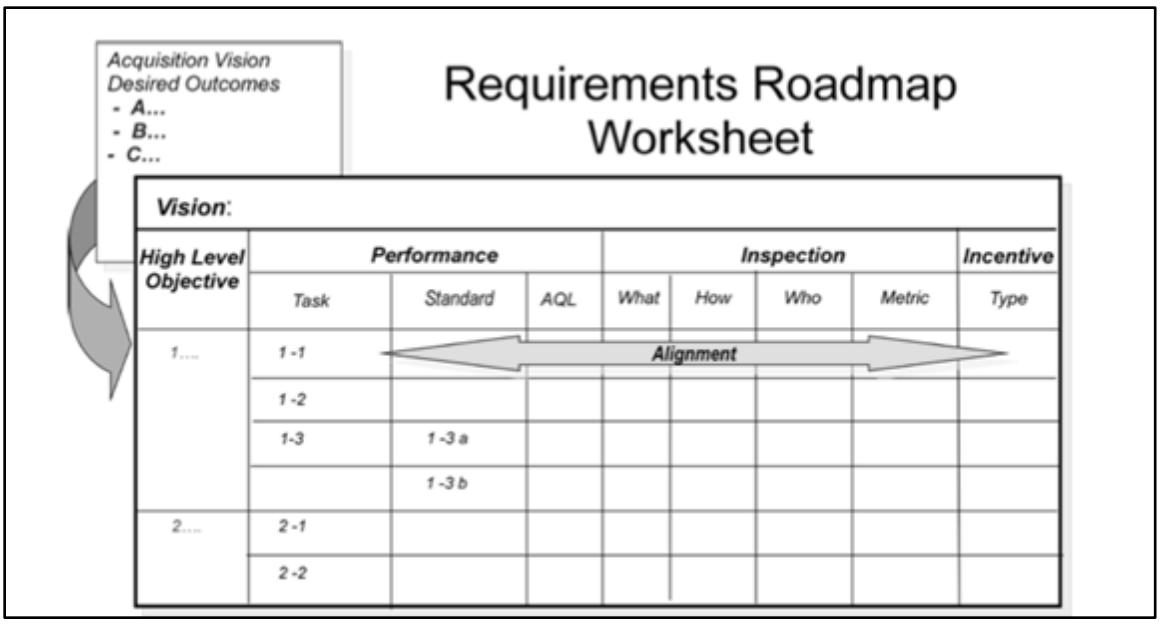

Figure 9. Requirements Roadmap (From DoD, 2012)

The final steps in this process involve detailing the exact services required by the agency or customer and ensuring that the stakeholders agree with the estimated costs and the prioritization of the requirements (DoD, 2012).

Step 5: Acquisition Strategy

The plan for determining which type of contract to use and how the source selection is determined is part of the acquisition strategy (DoD, 2012). This step involves putting together all of the previously gathered information and creating a plan to achieve the contracting objectives (DoD, 2012). This step is broken down into the five sub-elements seen in Figure 10.

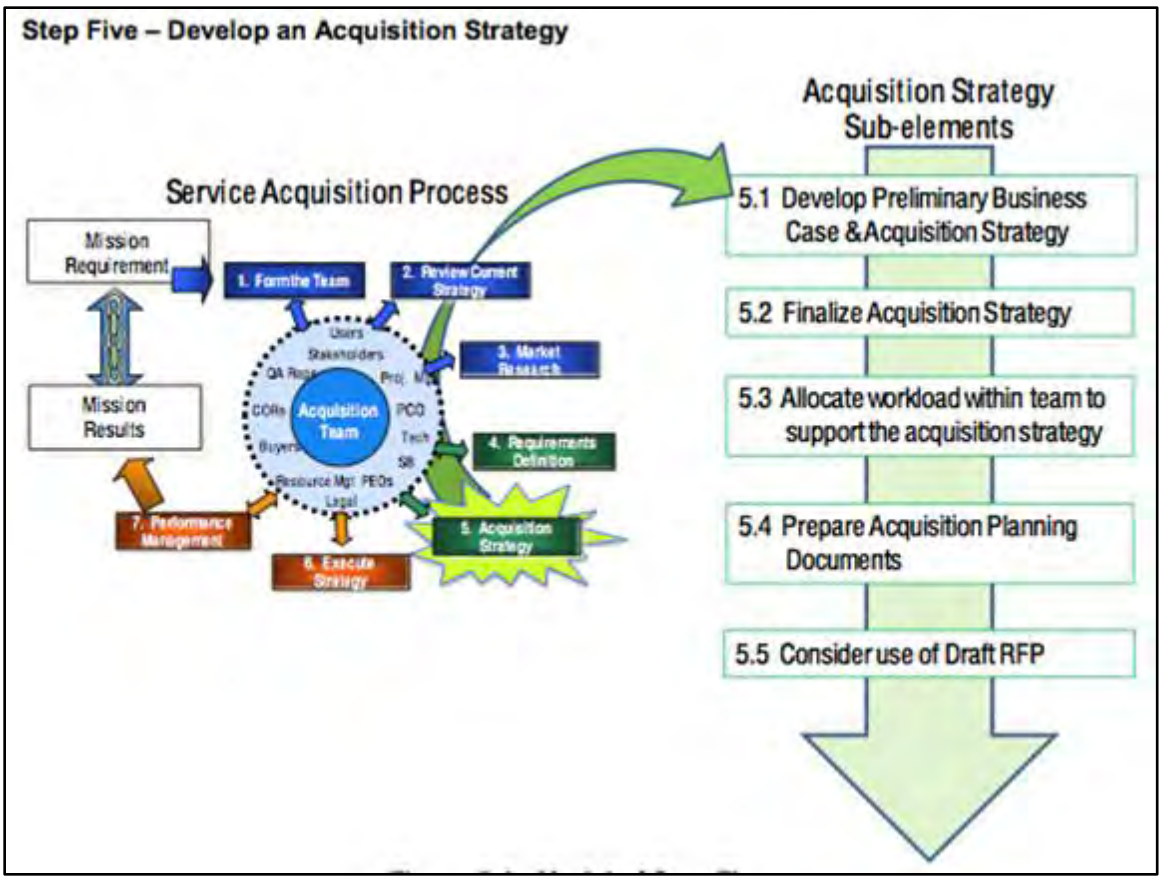

Figure 10. Develop an Acquisition Strategy (From DoD, 2012)

The five sub-elements of the Acquisition Strategy step begin with determining the proper contract type to use and ensuring that it contains the correct incentives to incentivize the service provider (DoD, 2012). From there, the acquisition team determines the method that will be used to select the best value source for the service. The acquisition team is assigned responsibilities for evaluating the proposals received, and a plan is created to disseminate the information amongst the team. The final step involves analyzing whether a draft request for proposal (RFP) should be used in order to obtain more feedback from the industry; this step is useful in reducing any misunderstandings or confusion from the industry and allows for a smoother acquisition process (DoD, 2012).

The Execution Phase

All the planning and development conducted thus far are implemented during the execution phase (DoD, 2012). This phase contains Steps 6 and 7 and begins with the publishing of a solicitation document. The solicitation document officially communicates requirements to the marketplace. From here, offerors submit their proposals, which are evaluated on their own merit, and then each proposal is evaluated for its ability to meet the requirements listed in the solicitation document. Once the contract is awarded, the contractor and the government begin to operate as a team as opposed to individual entities. This phase could eventually lead to the planning of a follow-on acquisition in the event the service is needed in perpetuity (DoD, 2012).

Step 6: Execute Strategy

Step 6 marks the official start to the initiation of the service acquisition, from the official request of a service to the selection of the provider of that service (DoD, 2012). As seen in Figure 11, this step includes seven sub-elements.

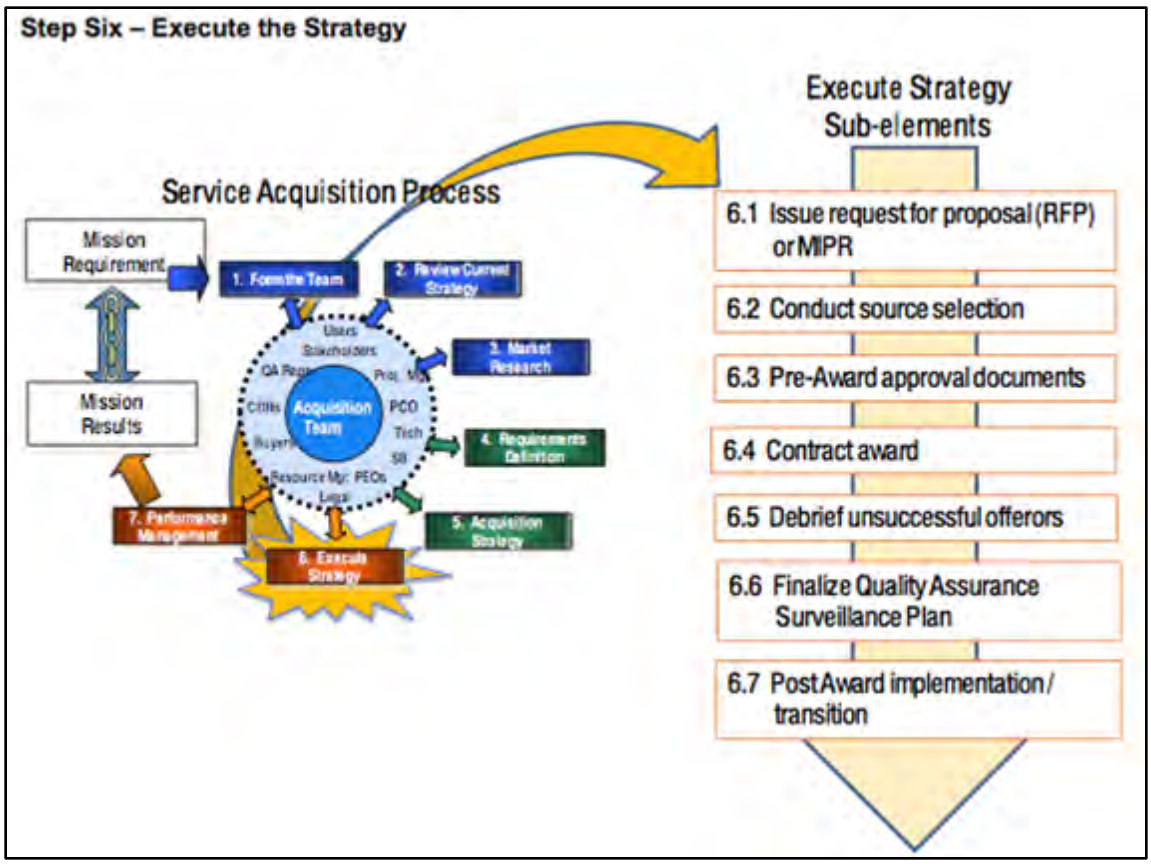

Figure 11. Execute the Strategy (From DoD, 2012)

The seven sub-elements begin with the official release of the RFP (DoD, 2012) The proposals received from the industry are evaluated based on the criteria outlined in the acquisition strategy from Step 5. Once the source selection has been determined, the companies that did not win the bid are debriefed. This debrief is intended to provide the companies with information that could help them be more competitive on future procurements. The final steps in this process solidify the quality assurance surveillance plan (QASP; DoD, 2012).

Step 7: Performance Management

Step 7 is the final step in the service acquisition process and is essentially the implementation of the awarded contract (DoD, 2012). The step involves actively managing the contract to achieve the mission requirements. Expectation

and contract management are key components of this step. This step is broken down into the six sub-elements shown in Figure 12 (DoD, 2012).

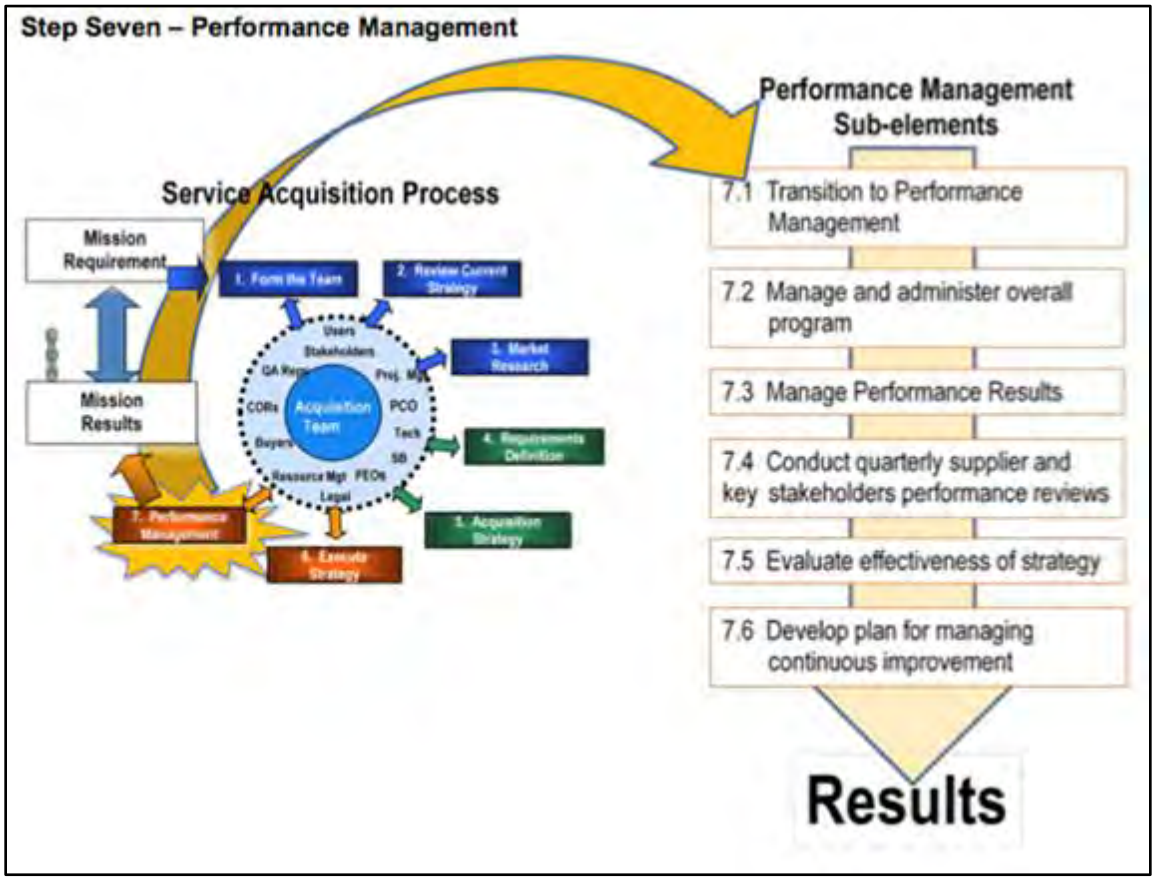

Figure 12. Performance Management (From DoD, 2012)

The sub-elements in this step begin with measuring the contractor's performance as described in the signed contract (DoD, 2012). The contract is administered during this step to ensure that all parties are performing their assigned duties, which includes compensating the contractor for providing the accepted services. Another important part of contract administration is regularly informing the contractor of his or her positive or negative performance of the services they are providing. Analyzing and documenting the completed acquisition concludes the service acquisition process (DoD, 2012). During this final phase of the service acquisition process, the contractor's performance is

documented for use in future source selections. The past performance information is captured in a database called the Contractor Performance Assessment Reporting System (CPARS), which is discussed in the next section.

C. THE CONTRACTOR PERFORMANCE ASSESSMENT REPORTING SYSTEM

The FAR defines past performance as "an offeror's or contractor's performance on active and physically completed contracts" (Part 2). Past Performance Information (PPI) is "used to communicate contractor strengths and weaknesses to source selection officials and contracting officers" (DoD, 2011, p. 50). CPARS is used in contracting to capture past performance information (PPI) for use in determining contractor responsibility (FAR, 2013, Part 9.104), during the source selection process (FAR, 2013, Part 15) and during the contract administration process (FAR, 2013, Part 42). This research focuses on the source selection process.

In 1994, Congress viewed past performance to be relevant in source selection and included this in the Federal Acquisition Streamlining Act (Berkheimer et al., 2008). In 1998, the Navy created the CPARS to collect historical information and to be in compliance with the congressional act (Berkheimer et al., 2008). In 2004, the undersecretary of defense for acquisition, technology, and logistics, defense procurement, and acquisition policy designated CPARS as the "solution for collecting contractor past performance information" (Berkheimer et al., 2008, p. i).

The Purpose of CPARS

CPARS was directed by the DoD and is designed to ensure that up-to-date information was available on a contractor's past performance, and is intended to be used in the source selection process (DoD, 2011). "The CPAR assesses a contractor's performance, both positive and negative, and provides a record on a given contract during a specified period of time" (DoD, 2011, p. 1). "The CPARS process is designed with a series of checks-and-balances to

facilitate the objective and consistent evaluation of contractor performance. Both Government and contractor perspectives are captured on the CPAR form" (DoD, 2011, p. 2).The information contained in CPARS is designed to be objective, though subjective data can be used in the event that measurement data is not identifiable (DoD, 2011). Once CPARS data is entered, it goes into the Past Performance Information Retrieval System (PPIRS), which collects past performance information (DoD, 2012). It is important to note that the information contained in PPIRS "is a method of recording contractor performance" and must not be the sole information used in determining a source selection (DoD, 2012, p. v). CPARS data entry is mandatory for any service contract exceeding $1,000,000 and the entries are completed by several different stakeholders.

CPARS Roles and Responsibilities

Five individuals are responsible for the overall CPARS input process: the activity CPARS focal point, the assessing official representative (AOR), the assessing official (AO), the designated contractor representative, and the reviewing official (DoD, 2011). The activity CPARS focal point is responsible for registering the contract into the CPARS database and is the individual who provides CPARS access authorization. The assessing official representative (AOR) has the responsibility of assisting the AO as needed, and provides a narrative that contains information regarding the quality of the service (DoD, 2011). AORs are typically CORs who are often assigned from the technical, functional, quality assurance, specialty, program management or contracting offices or the end users of a service. The assessing official (AO) has the overall responsibility of ensuring that the CPARS data and the overall service is completed. The AO may be a program manager or the equivalent individual responsible for the management of the service acquisition. The AO reviews the narrative submitted by the AOR and provides an overall evaluation of the contractor's performance. If any of the contractor's comments are modified by the AO, the AO is responsible for ensuring that the contractor is aware of them prior to the CPARS process being closed out (DoD, 2011).

The designated contractor representative is the individual who receives the completed evaluations from the AO (DoD, 2011). This representative then reviews, comments on, and returns the evaluation to the AO. The designated contractor representative has the ability to request a reviewing official review if deemed necessary. The reviewing official has the authority to provide a narrative to the CPARS data and is the individual responsible for signing the CPAR, which officially closes out the CPARS process. Once the CPAR is signed, the information is available through PPIRS for use by a future source selection team for a period of three years.

The quality of the information in each CPARS data entry is determined by the quality of the information provided by the individuals (DoD, 2011). Therefore, the effectiveness of CPARS is determined by the individuals who capture the data. While the CPAR system has the capacity to capture PPI and provide valuable information to acquisition officials, the system requires timely and detailed information from many different stakeholders to fulfill its potential. This often leads to issues among the stakeholders involved in the service acquisition since they all may not have the same objectives in the way they assess the contractor's performance.

The contracting officer, program manager, COR, contractor, FM, and customer all have different objectives in the way each manages a service contract. The contracting officer is primarily concerned with a contract's adherence to statutory requirements and public policy, and while required to support cost, schedule, and performance objectives the Program Manager is held solely accountable for their management (FAR, 2.101; DoD, 2012). The COR technical expert would consider a services contract successful if it meets or exceeds technical requirements while not necessarily valuing statutory requirements or the cost, schedule, and performance of the contract (Apte & Rendon, 2007). The contractor values obtaining the highest profit possible while satisfying the needs of the customer to obtain future business. The financial manager is solely concerned with ensuring that the acquisition team is operating

within current appropriations and authorizations. Lastly, the customer is mainly concerned with his or her needs being met as expeditiously and efficiently as possible.

Based on the different definitions of success by the stakeholders, it is easy to see how the stakeholders are sometimes in conflict with each other. The contracting officer may need more time to meet the statutory requirements of a contract, which may adversely affect the program manager's schedule. The financial manager may not be able to allocate enough money or even the correct appropriation (color of money) to a service to meet the contractor's required cash flow. Lastly, the customer may value a service provided but the service may not meet the technical requirements according to the COR. Stakeholder theory helps to explain why these different stakeholders have different objectives and how it can assist in the management of a service contract.

D. STAKEHOLDER THEORY

Stakeholder theory states that in business, the stakeholder's responsibility is to generate as much value as possible for his or her agency or business (Donaldson & Preston, 1995). The founding father of stakeholder theory, R. Edward Freeman, assumed that the purpose of the corporation is to generate and dispense some form of wealth to various stakeholders, and that in order to achieve that purpose, all of the stakeholders cooperate (Freeman, 1984). Applying stakeholder theory to services contracting involves all members of the government acquisition team, contractors, and the end user of a certain service. The members of the government acquisition team include the contracting officer, program manager, contracting officer representative, finance manager, and customer or end users. The different stakeholders represented in this model have very different ways of measuring success that are often in conflict with each other due to their differing goals. When the government and contractor negotiate a contract, the terms and conditions represent a compromise aimed at capturing the best value for the respective parties. These stakeholders also input

qualitative data based on the performance of the contractor into the CPARS database, which gives them the opportunity to explain how they measure the success of a contract. Even with different stakeholders working together to execute a contract, there are still issues with how the process is captured in the CPARS database. In addition to the different stakeholders and potential conflicting stakeholder goals, there are other issues and challenges involved in managing PPI.

E. CURRENT ISSUES REGARDING CPARS

The DoD inspector general conducted a study in 2008 on the controls and systems in place for contractor past performance records. They found that

- 39% were registered more than a year late from contract award;
- 68% had performance reports that were overdue; and
- 82% of past performance assessment reports reviewed did not contain detailed, sufficient narratives to establish that ratings were credible and justifiable. (Berkheimer et al., 2008, p. i)

At the time of this report, the IG found that 321 Army contracts had not been registered in CPARS (Berkheimer et al., 2008). These contracts were not being reported as required, so there is not any past performance data in the system on these contracts (Berkheimer et al., 2008). The report also found that 82% of the performance assessments lacked detailed narratives to support the ratings given to the contractor (Berkheimer et al., 2008).

The GAO conducted another study in 2013 in response to two previous studies in 2009 by the GAO and a 2011 study by the Office of Federal Procurement Policy (OFPP; GAO, 2013a). In 2009, the GAO found that contract reporting systems were not complete, accurate, and (due to limitations) effective (GAO, 2009). The OFPP reported that the DoD lacked sufficient narratives to justify ratings given to the contractors (GAO, 2013a). In 2013, the GAO found that PPIRS compliance for timeliness was up from 56% in 2011 to 74% in 2013. This shows that a little over a quarter of the required contracts are not submitted

on time into the reporting system. The DoD compliance was shown to be just lower than the average compliance of all the services at 73% submitted in time (GAO, 2013a). DoD officials attributed the shortcomings of the reporting system to the acquisition workforce shortages and high turnovers (GAO, 2013a).

The GAO and the DoD IG investigations showed that, although the systems already in place to evaluate past performance are improving, they are still flawed (GAO, 2013a). The National Defense Authorization Act (NDAA) for FY2012 requires a DoD strategy to ensure past performance assessments are complete, timely, and accurate (GAO, 2013a). These studies have shown that the DoD still has improvements to make to be compliant with the NDAA. Despite the concerns of conflicting stakeholders and the DoD IG and GAO findings, the use of CPAR assessments as a surrogate for contracting success is based on previous studies of service acquisition, which is discussed in the following section.

F. PREVIOUS STUDIES

This research is a follow-on to a stream of past research studies on services acquisition in the DoD that started in 2006. Apte, Ferrer, Lewis, and Rendon (2006) observed that the DoD's acquisition volume increased in the decade prior to 2006. They began an initial exploratory analysis in order to frame the DoD's service acquisition environment. This research revealed several significant findings that impact service contracting. They noted, as mentioned in the background section, the large increase in service contracting. They stated that service contracting has increased by 66% since 1999 (Apte et al., 2006). In 2003, the DoD spent $118 billion, which is approximately 57% of the total DoD procurement dollars (Apte et al., 2006). They observed that four services made up approximately 50% of total DoD spending on services (Apte et al., 2006). These services were

- professional, administrative, and management support services;
- construction, repair, and maintenance of structure and facilities;

- equipment maintenance; and
- information technology (IT) services (Apte et al., 2006).

They observed that frequent communication was essential in the success of service contracts (Apte et al., 2006). Apte et al. (2006) discussed a new technique called the Business Requirement Advisory Group (BRAG). When used successfully, the BRAG facilitates communication in the administration of contracts through the contract life cycle. This study brought attention to the centralization of service contracts. It showed the advantages and disadvantages of centralization, such as the difficulty of communication if the contract is being executed at a different location than where the contracting officer is located. According to Apte et al. (2006), the downsizing of the acquisition workforce and the push to aggressively comply with Circular A-76 (Office of Management and Budget [OMB], 2003) contradict the importance of having the correct number of trained acquisition workforce to be successful. This compliance with the Circular A-76 causes the value for the money to not be realized. The most significant find in this research is that while the DoD has increased service contract spending, the management infrastructure has not been maturing like product acquisition (Apte et al., 2006).

In 2007, Apte and Rendon completed their second exploratory research project on services. This research looked further into the supply chain management of service contracting and the application of a program management infrastructure (Apte & Rendon, 2007). Their research identified that the traditional approach to managing the service supply chain in the DoD and, specifically, the Air Force "does not include a centralized and coordinated management" approach (Apte & Rendon, 2007, p. 33). The Air Force's approach does not include a "life cycle, a designated program manager, cross-functional teams, or an enabling organizational structure" (Apte &Rendon, 2007, p. 33). During their research, Apte and Rendon did observe two types of innovative approaches to this structural void to assist the procuring agency in becoming more successful. The first approach was the Air Education and Training Center

(AETC). The AETC allows for a coordinated pre-award management of services acquisition. The AETC "does not maintain an on-site program manager" (Apte & Rendon, 2007, p. 33). Not keeping a program manager on site allows for the system to potentially fail because of broken communication between the interested parties. The ACC (Air Combat Command) model, which uses the Acquisition Management and Integration Center (AMIC) approach to service contracting, allows for a unique process that provides a cradle-to-grave acquisition approach (Apte & Rendon, 2007).

In their third exploratory research study, conducted in 2008, Apte, Apte, and Rendon continued their research into the management of services acquisition at military bases throughout the DoD. This research was a survey-based look at the Air Force and Navy's techniques for dealing with service contracts. This research provided real data on characteristics of service contracting, the management approaches used, and the program management issues inside the DoD (Apte et al., 2008).

In Apte, Apte, and Rendon's (2008) research, the Air Force covered four service categories: professional management services, maintenance, data processing, and transportation. The researchers looked at the degree of competition, contract type, and incentives used. The survey explored the level of services that are acquired in the Air Force. The survey also included questions asking whether a project team approach was used, who was the leader of the team, and who owns the requirements for the acquisition. Apte et al. (2008) found that the Air Force services they examined used competition the majority of the time.

The researchers found that the Air Force used firm fixed-price contracts the majority of the time, but rarely used incentives, as seen in Table 1 (Apte et al., 2008). The data showed that the majority of the service acquisition, throughout the life cycle, was conducted at the installation level as opposed to the regional level. The research revealed that the contracting officer led the project teams as opposed to the program manager. This indicates that there was

not program management involvement in the acquisition process of services at the installation level (Apte et al., 2008).

Table 1. Contract Management Approach Found in the Air Force (From Apte et al., 2008)

Service category	Degree of Competition			Contract Type			Contract Incentive		
	Competitive	Sole Source	N/A	Fixed	Cost	N/A	Award Fee	Award Term	N/A
Professional, Administrative, and Management Support									
FY03	62%	6%	32%	59%	9%	32%	9%	0%	91%
FY04	59%	6%	35%	56%	9%	35%	9%	0%	91%
FY05	59%	9%	32%	62%	6%	32%	9%	0%	91%
FY06	71%	9%	21%	71%	9%	21%	12%	0%	88%
FY07	76%	9%	15%	79%	6%	15%	12%	0%	88%
Maintenance and Repair of Equipment									
FY03	65%	6%	29%	68%	3%	29%	3%	3%	94%
FY04	65%	6%	29%	68%	3%	29%	3%	3%	94%
FY05	65%	6%	29%	68%	3%	29%	3%	3%	94%
FY06	76%	6%	18%	79%	3%	18%	3%	6%	91%
FY07	85%	6%	9%	88%	3%	9%	3%	6%	91%
Data Processing and Telecommunication									
FY03	56%	3%	41%	50%	6%	44%	9%	0%	91%
FY04	56%	3%	41%	50%	6%	44%	9%	0%	91%
FY05	56%	3%	41%	50%	6%	44%	9%	0%	91%
FY06	62%	6%	32%	59%	6%	35%	9%	0%	91%
FY07	71%	3%	26%	65%	6%	29%	9%	0%	91%
Transportation and Travel									
FY03	38%	0%	62%	38%	0%	62%	3%	0%	97%
FY04	41%	0%	59%	41%	0%	59%	3%	0%	97%
FY05	38%	0%	62%	38%	0%	62%	3%	0%	97%
FY06	47%	0%	53%	47%	0%	53%	3%	0%	97%
FY07	53%	0%	47%	53%	0%	47%	3%	0%	97%

Apte et al.'s (2008) research included the following Navy services: professional and administrative, maintenance and repair, data processing, and utilities and housekeeping (Apte et al., 2008). The survey for the Air Force was replicated for the Navy in this research. Apte et al. (2008) covered six regions, which encompassed 66 installations (Apte et al., 2008).

Apte et al. (2008) found that the Navy's organizational-level handling of service contracting was different than the Air Force's. The Navy acquired a little over half of its professional services at the regional level (Apte et al., 2008). Apte et al. (2008) found that 68% of the Navy's data processing services were acquired and managed at the regional level. The researchers also found that approximately half of the utilities and housekeeping services were acquired at the

regional level, and the other half were acquired and managed at the installation level (see Table 2; Apte et al., 2008).

Table 2. Results From Study of Navy Contracting, Organization Level (From Apte et al., 2008)

Service/Acquisition Phase	Organization Level			Total
	Regional	Installation	N/A	
Professional, Administrative, and Management Support				
Acquisition Planning	5	2	3	10
Solicitation	5	2	3	10
Source Selection	5	3	2	10
Contract Administration	3	4	3	10
Maintenance and Repair of Equipment				
Acquisition Planning	4	3	3	10
Solicitation	4	3	3	10
Source Selection	4	3	3	10
Contract Administration	2	6	2	10
Data Processing and Telecommunication				
Acquisition Planning	3	1	5	9
Solicitation	3	1	5	9
Source Selection	3	1	5	9
Contract Administration	2	2	5	9
Utilities and Housekeeping				
Acquisition Planning	2	2	4	8
Solicitation	2	2	4	8
Source Selection	2	2	4	8
Contract Administration	2	2	4	8

The data shows that the Navy used competition a majority of the time in all the four categories of services (Apte et al., 2008). The data also revealed that the Air Force contract characteristics were very similar to the Navy's. The study showed that a majority of the time, firm fixed-price contracts were used; however, incentives were not used very often (Apte et al., 2008).

The Navy used a project team approach only half the time when acquiring services (Apte et al., 2008). Researchers found that when project teams were used, they were only led by project managers half of the time. The research also found that when a project team was not used, either the customer or contract officer managed the acquisition effort (Apte et al., 2008).

This research showed common characteristics between the handling of service contracts in the Navy and the Air Force, such as the use of firm fixed-price contracts, the use of competition, and the minimum use of incentives (Apte et al., 2008). The research revealed no standard for managing service contracts in the DoD. It showed how the Air Force managed its contracts at the installation level, while the Navy conducted most of its management from regional offices. The study highlighted the different ways that agencies treat service contracts, such as using project teams. The research showed that, even when project teams were used, the contracting officer led the teams. This trend has the potential to cause problems because the lines of authority become grayer, and because team personnel are not working directly for the contracting officer (Apte et al., 2008).

In 2009, Apte, Apte, and Rendon published their fourth study of service contracting. This research widened the scope of the survey used in 2008, which focused on the Air Force and Navy, to include the Army. This allowed the researchers to gain a better understanding of how the agencies in the DoD manage their services differently. The 2009 research made use of the same survey that was used in Apte et al.'s (2008) third research project with the Navy and Air Force. This survey was distributed to eight contracting offices which included 40 Army installations. There was a 75% response rate to this survey. The services that the research included in this study were professional and administrative, maintenance and repair of equipment, data processing and telecommunication, medical, maintenance and repair of equipment, utilities and housekeeping, and transportation (Apte et al., 2009).

Apte et al. (2009) showed that the Army used competitively bid, firm fixed-price contracts without incentives in a majority of the cases (see Table 3). The data also showed that the Army conducted a majority of its service acquisition at the installation level. This practice may have an impact on the effectiveness of the contract given the improved ability to communicate between the interested parties (Apte et al., 2009).

Table 3. Army Contracting Results (From Apte et al., 2009)

	Degree of Competition			Contract Type			Contract Incentive			
	Competitive	Sole Source	N/A	Fixed	Cost	N/A	Incentive Fee	Award Fee	Award Term	N/A
FY03	58%	10%	32%	58%	8%	34%	0%	6%	2%	92%
FY04	59%	10%	31%	60%	7%	33%	0%	5%	1%	93%
FY05	59%	10%	30%	60%	7%	33%	1%	5%	1%	93%
FY06	62%	10%	28%	63%	8%	29%	1%	5%	2%	92%
FY07	65%	10%	25%	65%	8%	27%	1%	6%	2%	91%
FY08	66%	10%	24%	66%	8%	26%	1%	6%	2%	91%

The study revealed that the Army used the project team approach 62% of the time (Apte et al., 2009). The respondents said, however, that even when a project team approach was used, the contracting officer led the team 61% of the time (see Table 4). As mentioned in the 2008 Apte et al. research, this situation could cause communication problems and the graying of authoritative lines because the contracting officer does not have real authority over most project team members. Another finding of Apte et al. (2009) was related to the use of the life-cycle approach; this approach was used 40% of the time for routine services. For non-routine services, the life-cycle approach was only used 21% of the time. The use of the life-cycle approach should be used to ensure proper management. If services are non-routine in nature, this approach will allow for higher levels of uncertainty. This uncertainty and increased risk will be compounded when it is not mitigated through the use of the life-cycle approach (Apte et al., 2009).

This research also found that most acquisition professionals disagreed that their organizations had sufficient positions and that the available positions were adequately filled (Apte et al., 2009). The data also showed that only 39% of the respondents believed the acquisition workforce was trained, and only 45% believed the workforce was adequately trained (Apte et al., 2009).

Table 4. Use of Project Team (From Apte et al., 2009)

No. of Organizations	Organizations Using Project Team Approach				
	SubTotal	Who leads acquisition?		Who owns requirements?	
		Contracting Officer	Other (PM, QAE)	Contracting Officer	Customer (PM, QAE)
61	38	26	12	10	28

No. of Organizations	Organizations Not Using Project Team Approach				
	SubTotal	Who leads acquisition?		Who owns requirements?	
		Contracting Officer	Other (PM, QAE)	Contracting Officer	Customer (PM, QAE)
61	23	11	12	5	18

In 2010, Apte, Apte, and Rendon completed their fifth research project. This project analyzed the data that was collected in their previous studies involving the Air Force, Navy, and Army to gain a better understanding of how service acquisition was being managed across the DoD (Apte et al., 2010).

This research first examined contract characteristics for the three agencies. The year 2007 was the focus for the research because that year was a common time period of data collected for all three agencies (Apte et al., 2010). As seen in Figure 13 and discussed in earlier reports, full and open competition was used a majority of the time.

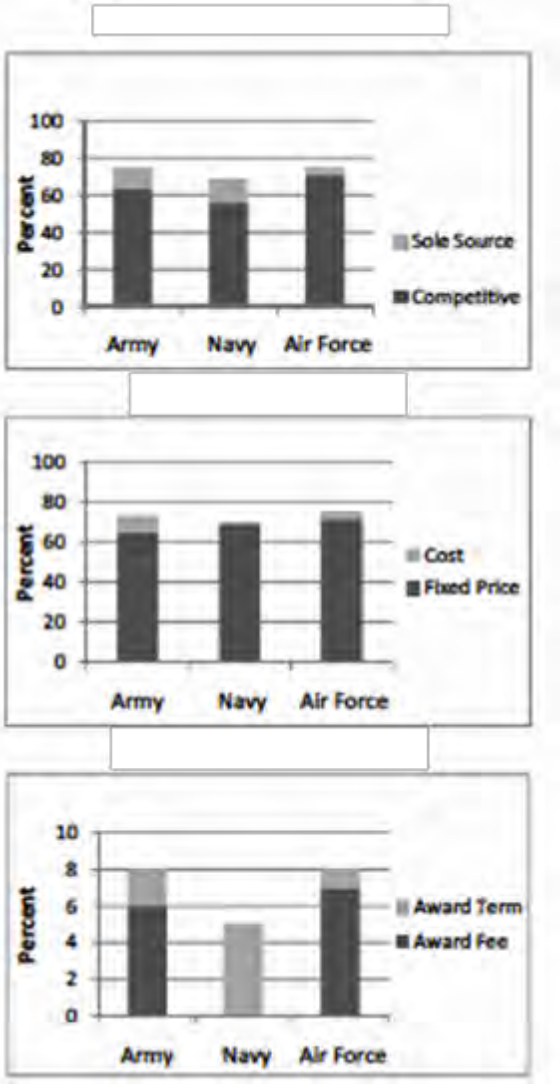

Figure 13. Contract Characteristics Between Army, Navy, and Air Force (From Apte et al., 2010)

Apte et al. (2010) reviewed the previous data and compared the agencies. The researchers also gave recommendations to improve the systems in place. One such recommendation was for the Navy to adopt a more disciplined approach and to look at using a possible virtual project team, since the acquisitions and management mainly occur at the regional level (Apte et al., 2010). If this were implemented, the quality assurance evaluator (QAE) or contracting officer representative (COR) can serve as the site manager, and issues and communication can improve between the sites of the services and

where the contract is officially being managed (Apte et al., 2010). A recommendation for the Army and Air Force was to look at establishing an installation project manager who is overall in charge of cost, schedule, and performance for services on the installation. Apte et al. (2010) recommended for all of the agencies to increase the effectiveness of all acquisition training to ensure a qualified workforce.

Apte, Apte, and Rendon completed their sixth study in 2012 on service acquisitions. This research focused on the drivers of management practices in the Army. From the previous research they conducted, they believed that four factors had major impacts on service contracting (Apte et al., 2012). These factors are the

- Type and quantity of services being outsourced and the associated acquisition related workload.
- Characteristics of contracts being awarded.
- Capacity available to carry out the contracting, project management, and surveillance work.
- Various management practices, such as use of project team or life cycle approaches. (Apte et al., 2012, p. 6)

The relationship is shown in Figure 14.

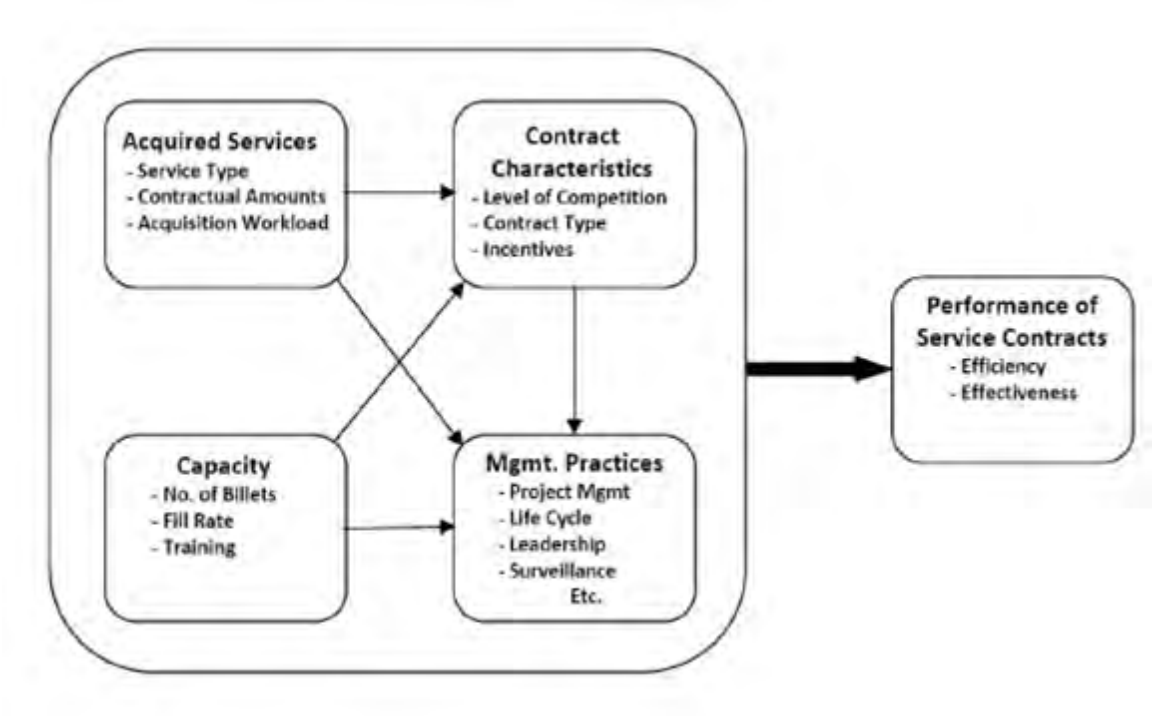

Figure 14. Contract Relationships (From Apte et al., 2012)

Contract file reviews and interviews at Mission and Installation Contracting Commands (MICCs) were conducted to complete this research (Apte et al., 2012).

This research focused on four product service codes (PSCs):

- R—Professional, Administrative, and Management Support Services;
- J—Maintenance, Repair, and Rebuilding of Equipment Services;
- S—Utilities and Housekeeping Services; and
- D—Automatic Data Processing and Telecommunications Services (Apte et al., 2012, p. 10).

These PSCs account for 60% of the Army's spending on services (Apte et al., 2012). The research focused on contract characteristics and management practices (Apte et al., 2012). These two areas include the following:

- Contract characteristics: level of competition, contract type, award/incentive fee, contract cost, number of modifications, award basis
- Management Practices: use of Independent Government Estimate (IGE), number of personnel assigned, use of a team approach, acquisition leadership, contract award time, acquisition plan, performance work statement or statement of work (PWS/SOW), price analysis, price negotiation memorandum, quality assurance plan, closeout letter. (Apte et al., 2012, p. 10)

Their research showed some relationships between service type and three contracting characteristics and a statistical relationship between service type and five management practices (Apte et al., 2012). These relationships are shown in Figure 15.

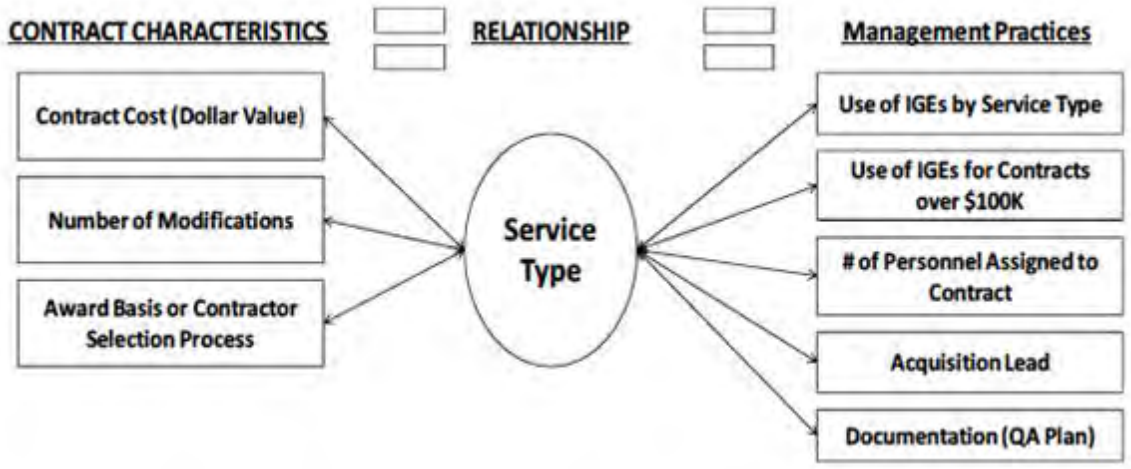

Figure 15. Relationship Between Service Type, Contract Characteristics, and Management Practices (From Apte et al., 2012)

Apte et al. (2012) found during this project that the average cost to S PSCs was higher than for the other three service codes. They noted that service codes R and S had a higher number of modifications than D and J. They found that R and S used best value trade-off contracts a majority of the time, while D and J used lowest price technically acceptable (LPTA) 50% of the time. They observed that firm fixed-price contracts were always used, but only once with

incentives. They also did not find any relationship with the solicitation process and service type (Apte et al., 2012).

After evaluating the 14 management practices, the researchers found five management practices which had a statistical relationship with the service type (Apte et al., 2012). They also found that if the contract was over the simplified acquisition threshold, the contracts only had IGEs 32% of the time. Apte et al. (2012) found that the number of people assigned to PSCs R and S were higher than for the other service codes. Apte et al. documented that the contracting officer led the acquisitions of the services in 146 out of the 154 contracts that they researched, and the contracting specialist led acquisitions for the other eight contracts. The researchers also stated that only 43% of the contracts they reviewed had a QASP (Apte et al., 2012).

While investigating whether the MICC's capacity to conduct acquisition work affects its management practices, Apte et al. (2012) found that there is a statistical relationship between capacity and management practices. They found that the offices did not have the required number of authorized people to conduct acquisition functions. They also found that MICC personnel lacked the proper training certifications (see Table 5).

Table 5. Contracting Workforce Results (From Apte et al., 2012)

Capacity Category	Capacity Subcategories	MICC Office A	MICC Office C	MICC Office D	MICC Office E	MICC Office F	MICC Office G	MICC Office H
Billets	Warranted	100%	88%	83%	58%	100%	100%	100%
	Non-warranted	0%	84%	106%	47%	117%	86%	86%
Certification	DAWIA I	23%	13%	23%	8%	0%	2%	0%
	DAWIA II	162%	24%	16%	54%	66%	66%	68%
	DAWIA III	100%	27%	33%	118%	0%	32%	32%
Experience	< 1 year	18%	14%	7%	0%	14%	10%	4%
	1 - 2 years	18%	43%	12%	1%	23%	3%	2%
	2 - 3 years	10%	16%	7%	9%	34%	19%	21%
	> 3 years	55%	17%	74%	90%	29%	68%	73%

The researchers found that the MICCs have a substantial workload with minimal personnel, training, and experience (Apte et al., 2012).

In 2012, Hagan, Spede, and Sutton conducted research on how the Navy stakeholders determined and defined success in service contracting. After surveying 168 key stakeholders, Hagen et al. found that all the stakeholders tended to use outcome related factors as opposed to process related factors when asked to define and measure the success of service contracts. They recommended that Navy service contract success should be defined in terms of both the outcomes and processes. Outcome success was defined and measured in terms of the cost, schedule, and performance of successful service contracts. Cost outcomes referenced cost overruns, total profits, cost reasonableness, and cost fairness. Schedule related to the ability to meet assigned timelines and complete the contract. Performance dealt with stakeholder satisfaction and the ability to perform the statement of work (Hagan et al., 2012).

Process success was defined in terms of how the contract was administered and planned and the number of protests it received for the definition of success (Hagan et al., 2012). The measurement of process success was determined by the communication between stakeholders and the number of modifications the contract received. Administration dealt with the total workload on the acquisition team and the number of contracts the contracting officer currently managed. Planning was related to the ability of a contracting officer to turn requirements into contractual obligations. Number of protests and number of modifications were the quantitative numbers associated with each. Communication assessed the amount of information flow and the quality of communication between the stakeholders. A diagram of Hagan et al.'s (2012) research questions is shown in Figure 16.

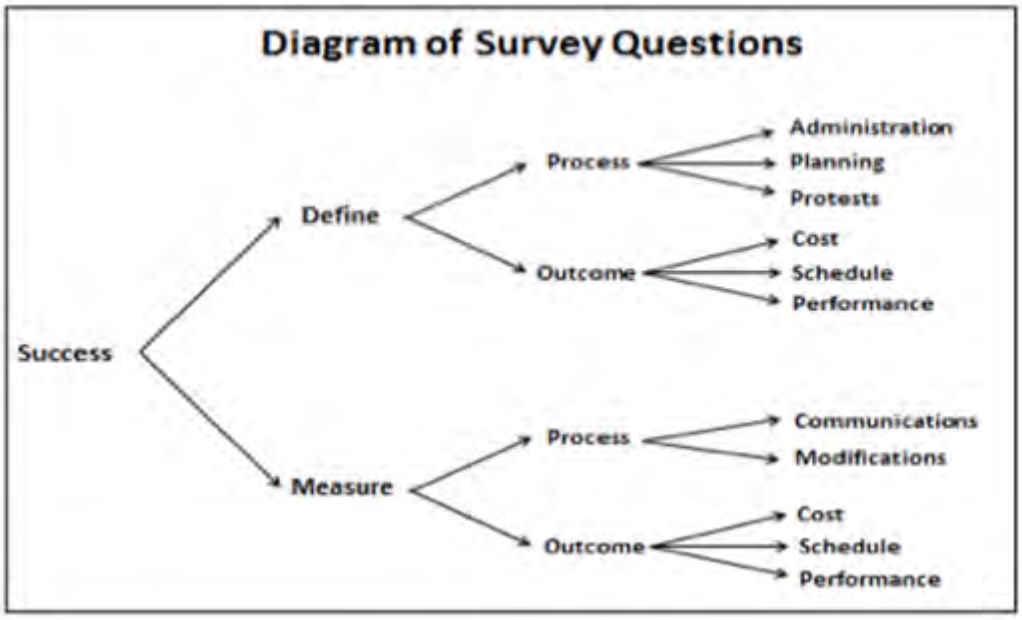

Figure 16. Diagram of Survey Questions (From Hagan et al., 2012)

Therefore, based on the already mentioned previous studies, this research uses the Contractor Performance Assessment Reporting System (CPARS) data results as a surrogate definition of a successful service contract, considering no definitive definition has been established by the DoD, and the CPARS captures the outcomes for both defining and measuring a successful service contract by Hagan, Spede and Sutton (Hagan et al., 2012).

G. SUMMARY

This chapter contains a review of the available literature on DoD service contracting processes. This chapter presented an overview of the service contract management process by providing an in-depth description of the seven steps and associated sub-elements. The review of the CPARS database in this chapter looked at the information that CPARS provides to the user and who is responsible for capturing CPARS data throughout the service contract management process. Next, the chapter described how stakeholder theory explains how the differing goals of the different stakeholders can lead to a contract that provides the best value to all parties. The current issues facing

CPARS were also described to highlight some of the current problems the system is facing. Previous studies relating to service acquisitions were also explained to provide context for why CPAR assessments can be used as a surrogate for contract success. The next chapter examines the research questions for this project and provides a description of how the research will be conducted, the data used in the research, and the type of analysis used in the project.

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III. RESEARCH METHODOLOGY

A. INTRODUCTION

The purpose of this chapter is to discuss how this research is conducted and how a successful service contract is defined using the CPARS data. This chapter begins by discussing why the CPARS database is used in deriving a definition of a successful service contract. It then expounds upon what data is retrieved from the CPARS database and how that data is analyzed. The results of the research are revealed in Chapter IV.

B. DEFINING A SUCCESSFUL SERVICE CONTRACT

CPARS data will be used as a surrogate definition of a successful service contract because it captures the outcomes defined by Hagan, Spede, and Sutton for both measuring and defining a service contract (Hagan et al., 2012). Quality, schedule and cost control assessments are captured in the CPARS database and report key aspects of a contractor's performance on the contract. The Quality rating contains the AO's assessment of the contractor's qualitative performance and compares it to the requirements stated in the contract. The Schedule rating contains an assessment of the contractor's ability to meet schedules outlined in the contract such as "task orders, milestones, delivery schedules, and administrative requirements" (DoD, 2011, p. A3–7). The Cost Control rating contains an assessment of the contractor's ability to "forecast, manage, and control the costs" associated with conducting their services (DoD, 2011, p. A3–7). The Business Relations rating contains an assessment of the contractor's ability to coordinate their business activities such as corporate behavior, customer satisfaction, management, and attitude towards customers. The Management of Key Personnel rating contains an assessment of the contactors ability to maintain qualified individuals in key positions as outlined in the contract. The Utilization of Small Business rating contains an assessment of the contractors' ability to integrate small businesses in the execution of the contract.

These ratings are completed and approved in the CPARS database. Once the CPARS ratings are approved, the information is stored and accessed through the PPIRS-RC database. This research obtained the CPARS data by accessing the PPIRS-RC database (DoD, 2011).

C. DESIGNING THE DATABASE

The search of the PPIRS-RC website was limited to the Army MICC non-system business sector. From the results of the search, a spreadsheet was created of all the contracts contained within the PPIRS-RC database. This search yielded 14,395 contracts in total, with periods of performance end dates ranging from 1996 through 2013. The data was then narrowed to only those contracts containing a Product or Service Code or Federal Service Code (PSC/FSC) of R, D, J, or S, which yielded 5,621 contracts. It is important to note that construction contracts were not included in this database since they are categorized as a distinct business sector within the PPIRS-RC database. The data was further narrowed by only searching five contracting organizations. These organizations were Fort Eustis (W911S0), Fort Knox (W9124D), Fort Hood (W91151), Fort Bragg (W91247), and Fort Sam Houston (W911SE). These organizations were selected because they are organized as the MICC Field Directorate Offices (FDOs) of five different areas of focus, as seen in Figure 17. This narrowed the data to 715 distinct service contracts that were used in conducting analysis, as seen in Table 6. For each contract, data was collected on the awarded dollar value, basis of award, type of contract, quality of product/service rating, schedule rating, cost control rating, business relations rating, management of key personnel rating, and utilization of small business rating in order to answer the four primary research questions.

Figure 17. Contracting Lines of Operation (From Vollmecke, 2012)

Table 6. Database Breakdown

	Total Contracts
Total Army MICC Non-System Contracts	**14395**
Removed Non R, J, S, D Service Contracts	**8774**
Total R, J, S, D Service Contracts	**5621**
Removed other MICC R, J, S, D Service Contracts	**4906**
MICC FDO Eustis, Knox, Hood, Bragg, Sam Houston Service Contracts	**715**
Fort Eustis	238
Fort Knox	119
Fort Hood	114
Fort Bragg	55
Fort Sam Houston	189

Once the database was established, it was further refined by labeling each contract as a success or a failure. Labeling a contract as a failure was determined by whether a contract received a marginal or unsatisfactory rating in quality of product/service, schedule, cost control, business relations, management of key personnel, or utilization of small business rating. Receiving a marginal or unsatisfactory rating in any one of these ratings labels the entire contract as a failure. Those contracts not determined to be failures were labeled as successful service contracts. See appendix A for more details.

The data obtained from PPIRS-RC was exclusively related to outcome successes defined by Hagan, Spede, and Sutton (2012). In addition to the PPIRS-RC outcome-related data, organizational data was collected in the areas of annual workload in dollars, number of actions completed by the MICC, number of 1102 billets authorized, and percent of 1102 billets filled. This data was added to the database in an effort to analyze some of the process success characteristics defined by Hagan, Spede and Sutton (Hagan et al., 2012). Once

the database was completed, it was analyzed to answer the four research questions. The next section describes how the database is analyzed to answer the research questions.

D. ANALYZING THE DATABASE

Determination of whether the types of services being acquired affected the success of the contract was conducted by determining the total number of contracts in each of the R, J, S, and D type services and the total that were determined to be failures. The total failures for each type of service were divided by the total number of the contracts for that type of service. This result was the failure rate for that specific type of service. This analysis revealed whether one type of service resulted in a higher failure rating then other types of services. These results were then analyzed to determine the stated reasons that the contracts were given a marginal or unsatisfactory rating in order to determine whether a failure pattern emerged for the types of services being acquired. Finally, additional analysis was conducted to attempt to identify other data correlations that may highlight why a certain service type was evaluated as a failure. These results are useful in determining the management levers that might assist in ensuring a successful service contract.

Determination of whether contractual amounts affected the success of a service contract was conducted in the same manner as the types of services being acquired. The contract categories in this analysis were broken down into five separate categories: 0–$1 million, greater than $1 million–$10 million, greater than $10 million–$50 million, greater than $50 million–$1 billion, and greater than $1 billion. The failure rates were then determined for each of these categories and whether a correlation existed between the ratings that the contracts received. Each category then received an in-depth analysis of why it received a failure rating by showing which category (quality, schedule, cost control, business relations, management of key personnel, and utilization of small business) received a marginal or unsatisfactory rating.

To answer the third question about whether the level of competition used affects the success of a service contract, the contracts were separated into three different categories: competitive, non-competitive, and *other*. Failure rates were used for each of these categories to reveal whether the level of competition used was related to the failure of that level of competition. The ratings of the unsuccessful contracts were then analyzed to determine which area (quality, schedule, cost control, business relations, management of key personnel, and utilization of small business) was more frequently associated with the contract being rated as marginal or unsatisfactory.

The final research question focused on the type of contract used and the success of the contract. This required dividing the contracts into six different categories. The first four categories are CPAF, CPFF, CPIF, and FFP. The remaining two categories are a combination and *other*. The combination category contains contracts that used a combination of CPAF, CPFF and FFP together instead of using just one type. The *other* category includes all the contracts that did not fit into the previous five categories, such as labor hours or time and materials. The failure rates and associated reasons determined whether the types of contracts being used affected the success of a service contract.

Once the primary research questions were analyzed, analysis on the location, duration, year the contract was completed, and the MICC organizational data was used to determine whether any of these additional factors relate to the four contract variables. The MICC organizational data focuses on four main areas: annual workload in dollars spent, number of completed contracts, number of authorized 1102 billets, and the percent of 1102 billets filled. This organizational data proved useful in adding some of the process success variables defined by Hagan, Spede and Sutton to the analysis (Hagan et al., 2012). The failure rates and rating patterns among these contracts provided additional insight into the four primary research questions.

Answering these research questions with the data collected reveals whether the four contract variables had a statistically significant impact on the

success or failure of a service contract. The results of that analysis help focus further research to explain why that is the case and what the DoD can do to increase the success rate of service contracts.

Figure 18 illustrates the research methodology previously described. The column on the right contains the six CPARS data areas. These areas are used to label each contract as a success or a failure based on the ratings (marginal or unsatisfactory). The contracts labeled as failures are analyzed using the four contract variables shown on the left column. The purpose is to determine if there is a relationship between contract variables and contract success.

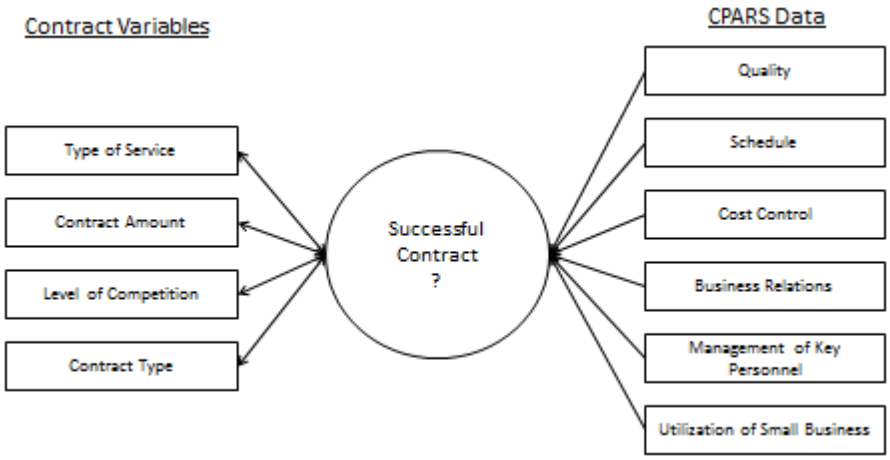

Figure 18. Research Methodology

E. SUMMARY

This chapter reviewed the research methodology used in answering the four research questions. It began by defining a successful service contract according to this research. The chapter then described how the database was designed to capture the data that was analyzed. Finally, the chapter discussed how the research questions were answered. The next chapter shows the data analysis and the results of the research.

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IV. ANALYSIS AND IMPLICATIONS

A. INTRODUCTION

This chapter reveals the results of the research into "what variables drive successful service contracts?" This chapter begins with an overview of the database created for this report in order to create a clear picture of how the results were derived. This overview includes the total number of successful and unsuccessful contracts separated into specific categories. Once the database is framed, the chapter explores the four primary research questions driving this study, which focus on the failure rates of the different categories. The chapter then explores additional information obtained from the database, including the MICC organizational data, in order to add additional insight into the four primary variables. The additional analysis enhances the understanding of the drivers of success and adds valuable insight into what makes service contracts successful. This chapter concludes with a significance test and the implications of the findings.

B. OVERVIEW OF THE DATA

The database consisted of 715 contracts pulled from the PPIRS-RC database. These contracts were from five different MICC Regional offices and consisted of R (Professional, Administrative, and Management Support Services), J (Maintenance, Repair, and Rebuilding of Equipment Services), S (Utilities and Housekeeping Services), and D (Automatic Data Processing and Telecommunications Services) type of services. The data pulled represent population data that meet the criteria of the MICC Regional offices and the services previously listed. Labeling a contract as a failure was determined by whether a contract received a marginal or unsatisfactory rating in quality of product/service, schedule, cost control, business relations, management of key personnel, or utilization of small business rating. Receiving a marginal or unsatisfactory rating in any one of these ratings labels the entire contract as a

failure. Those contracts not determined to be failures were labeled as successful service contracts.

The data consisted of 715 contracts; 22 resulted in a failure label as just described and as explained in Chapter III. This resulted in a total contract failure rate of 3.08%. These results are clearly seen in Figure 19 and Table 7.

Figure 19. Total Contracts

Table 7. Total Contract Information

	Failures	Success	Total	Failure Rate
Contracts	22	693	715	3.08%

Contracts evaluated and entered in CPARS are evaluated by quality, schedule, cost control, business relations, management of key personnel, and utilization of small business (discussed in more detail in Chapter III). The total contract failures for each area of evaluation can be seen in Figure 20. Each area of evaluation was given a score respective of the rating the evaluator gave that area (see Table 8). The areas of evaluation scores were then averaged to examine what areas where rated higher throughout the population (see Table 9). Business relations had the highest average among the other evaluation areas

with an average score of 3. Management of key personnel had the next highest average with a score of 2.68. Quality, schedule, and utilization of small business had equal average scores of 2.5. Cost control had the lowest average score of all the areas with a 2.31 average score.

Table 8. Area of Contract Evaluation Scores

Rating	Score
Exceptional	5
Very Good	4
Satisfactory	3
Marginal	2
Unsatisfactory	1

Table 9. Average Success and Failure Rates of PPIRS Areas of Contract Evaluation

	Successes Average Ratings	Failures Average Ratings
Quality	4.19	2.5
Schedule	4.19	2.5
Cost Control	4.1	2.31
Business Relations	4.17	3
Management of Key Personnel	4.18	2.68
Utilization of Small Business	4.07	2.5

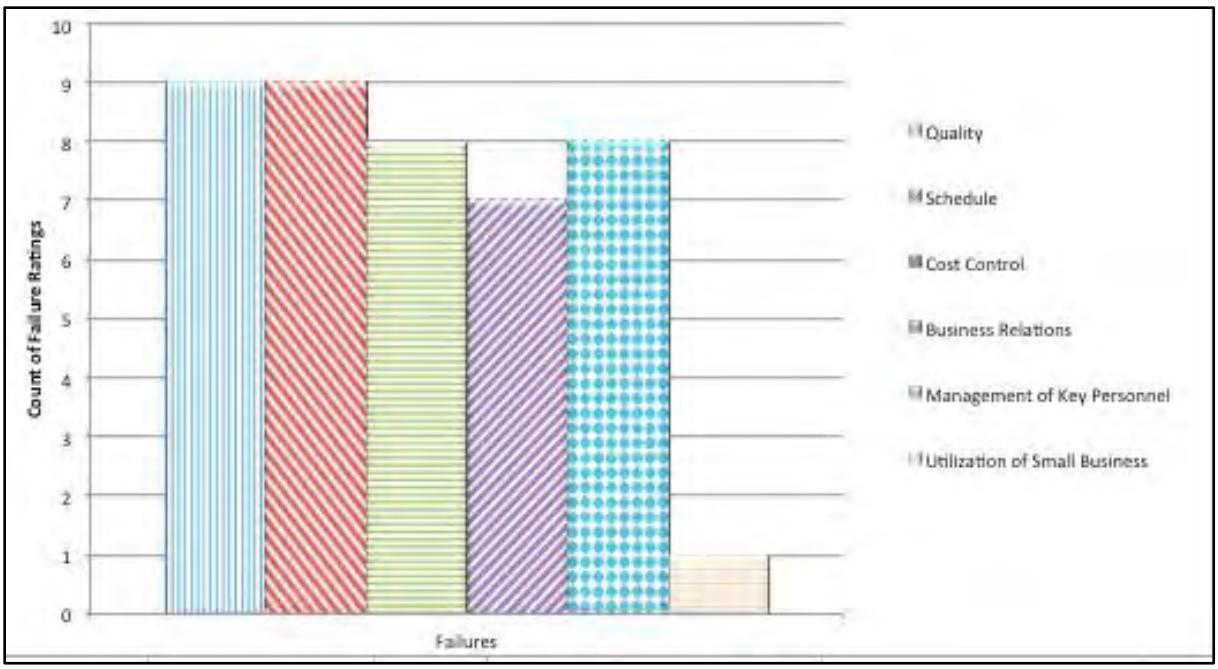

Figure 20. Stated Reason of Failure Label for All Contracts

C. ANSWERING THE RESEARCH QUESTIONS

1. Research Questions Restated

The primary question addressed in this research concerns what variables drive successful service contracts. This research focuses on four research questions that explore the variables that result in successful service contracts. These questions are as follows:

- Do the types of services being acquired affect the success of a service contract?
- Do the contractual amounts affect the success of a service contract?
- Does the level of competition used affect the success of a service contract?
- Does the contract type affect the success of a service contract?

This information proves valuable in identifying the variables that ensure a successful service contract.

2. Type of Service

The first research question is as follows: Do the types of services being acquired affect the success of a service contract? To answer this question, four-product service codes were examined using data gathered from the PPIRS database. Contracts with a product service code of R (Professional, Administrative, and Management Support Services), J (Maintenance, Repair, and Rebuilding of Equipment Services), S (Utilities and Housekeeping Services), and D (Automatic Data Processing and Telecommunications Services) were analyzed to include the failure rates of each service contract. The database contained 331 R-type contracts, 58 J-type contracts, 292 S-type contracts and 34 D-type contracts (see Table 8).

Finding 1: The S-type contracts had the highest failure rate of all the product service codes analyzed.

The 11 labeled failures of S-type contracts resulted in a 3.77% failure rate (see Figure 21). There were two reasons that tied for the most common reasons for S-type contract failures. These reasons were six business relation failures and six failures due to management of key personnel (see Figure 22). R-type contracts had nine labeled failing contracts out of 331, giving R-type contracts a failure rate of 2.72% (see Figure 21) which was the second lowest. The most common reason entered into the PPIRS database was quality. J-type contracts consisted of 58 contracts with two labeled failures. This gave the J-type contracts a failure rate of 3.45%. For both labeled failures of the J-type contract, scheduling was listed as a reason for both of these failures. There were only 34 of D service code contract types with 0 failures (see Figure 21 and 22).

Table 10. Type of Service Acquired Total Successes and Failures

Type of Service Acquired Categories	Total Successes	Total Failures	Total Contracts	Failure Rates
D	34	0	34	0.00%
J	56	2	58	3.45%
R	322	9	331	2.72%
S	281	11	292	3.77%
Total	**693**	**22**	**715**	**3.08%**

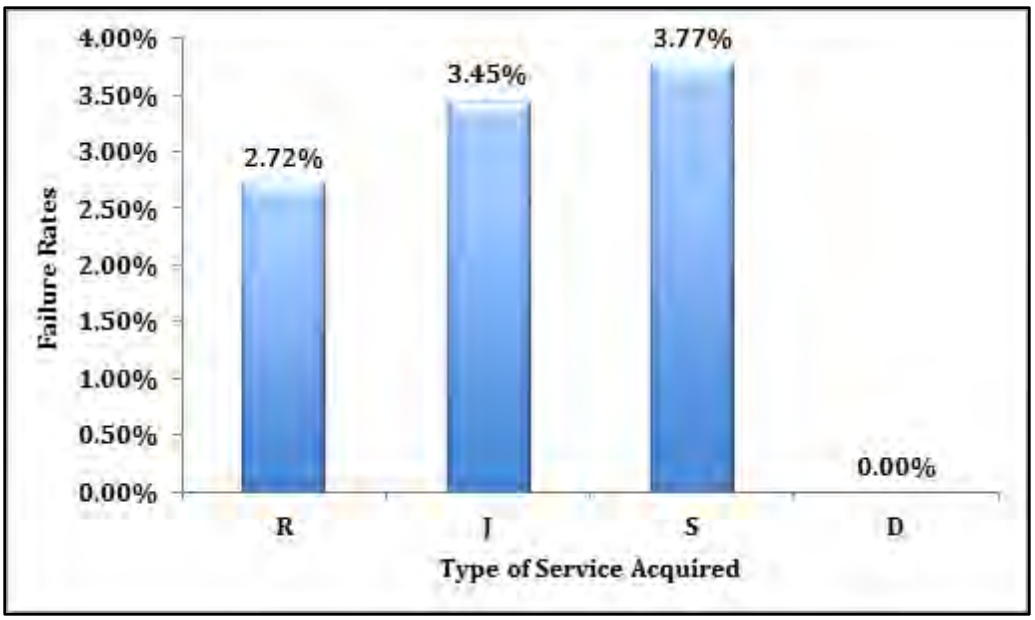

Figure 21. Failure Rates of the Different Product Service Code Contracts

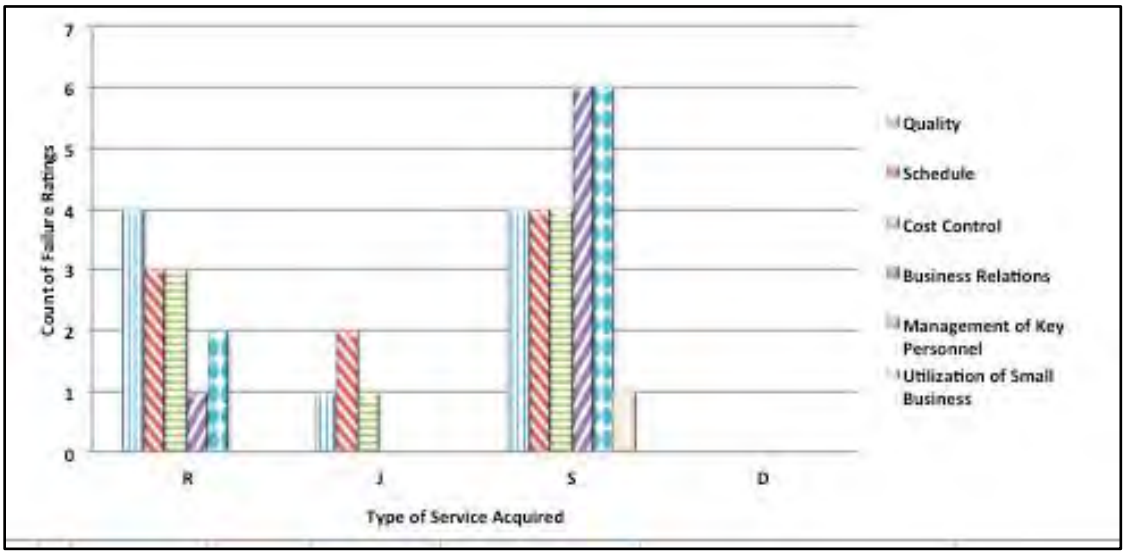

Figure 22. Reasons for Product Service Code Failure

3. Contractual Amounts

The second research question is as follows: Do the contractual amounts affect the success of a service contract? To answer this question the research grouped the contracts into dollar amounts. The different dollar amount categories contracts that were 0–$1 million, contracts greater than $1 million– $10 million,

contracts greater than $10 million–$50 million, contracts greater than $50 million–$1 billion, and contracts greater than $1 billion (see Table 11). The researchers looked at these different dollar amounts separately and examined the failure rate of each group.

Finding 2: The contract grouping that consisted of contracts worth a dollar amount greater than $50 million–$1 billion had the highest failure rate of all the groups in the analysis.

This group consisted of 92 contracts with eight labeled failures, giving the group a failure rate of 8.7% (see Figure 23). This group's most common reason for failing was cost control (see Figure 24). This reason was listed for six failed contracts. This failure rate is much higher than the total contract average failure rate of 3.08%. In the first group that consisted of contracts that were worth 0–$1 million, there were a total of 35 contracts. In this first group there was only one labeled a failure (see Figure 23). This gave this group a 2.86% failure rate. This contract was labeled a failure because of quality (see Figure 24). The group consisting of contracts greater than $1– 50 million was the largest of all the grouped dollar amounts. It consisted of 466 contracts, and of those, 10 were labeled failures. That gave this group a 2.15% failure rate (see Figure 23). While this group had the most failures numerically, it still was under the average failure rate because of the amount of contracts total in this group. The most common reason for this group to fail, according to PPIRS, was for quality, it was cited seven times. The contracts greater than $10 million–$50 million group consisted of 118 contracts. There were three labeled failures in this group. This group had a 2.54% failure rate. This group was also under the average total contract failure rate of 3.08%. This contract group most commonly failed for scheduling issues and management of key personnel. It failed for scheduling twice and management of key personnel twice (see Figure 24). This means that one of the contracts in this group had both issues listed as reasons for failure. The group consisting of contracts worth greater than $1 billion was the smallest group in the

contractual amount grouping. It consisted of only four contracts and did not contain any labeled failures.

Table 11. Contract Amount Total Successes and Failures

Contract Dollar Amount Categories	Total Successes	Total Failures	Total Contracts	Failure Rates
$0-$1M	34	1	35	2.86%
>$1M-$10M	456	10	466	2.15%
>$10M-$50M	115	3	118	2.54%
>$50M-$1B	84	8	92	8.70%
>$1B	4	0	4	0.00%
Total	**693**	**22**	**715**	**3.08%**

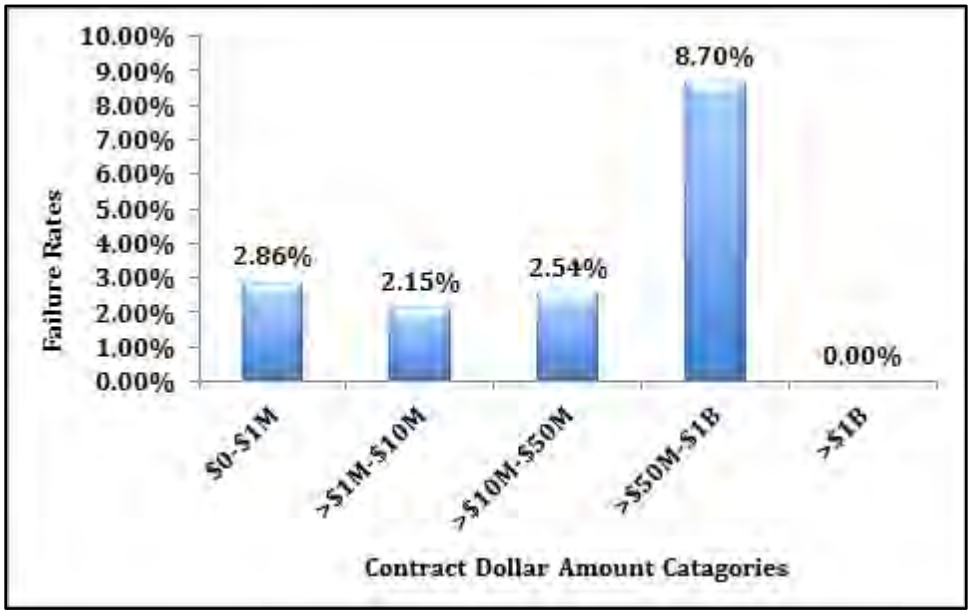

Figure 23. Failure Rate by Grouped Dollar Value

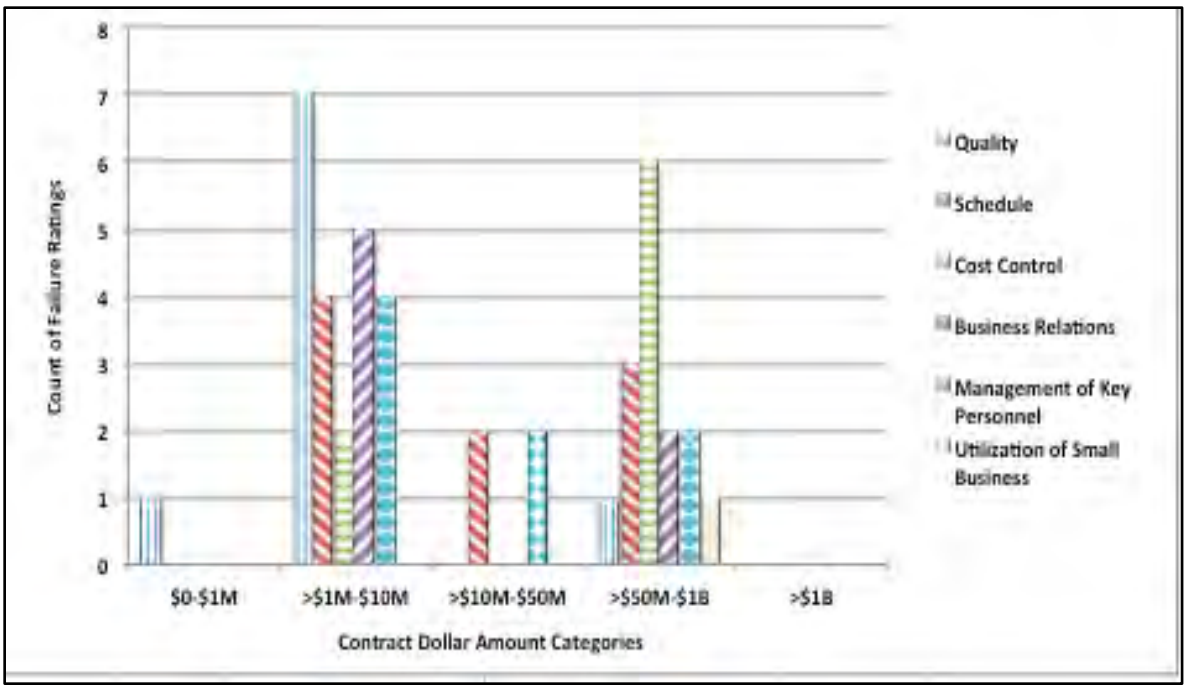

Figure 24. Reasons for Grouped Dollar Value Failure

4. Level of Competition

The third research question is as follows: Does the level of competition affect the success of a service contract? To answer this question, the research grouped the contracts into three categories: competitive, non-competitive, and *other*. The researchers looked at these different categories separately and examined the failure rate of each group. These categories are shown in Table 12.

Finding 3: Contracts competed competitively had the highest failure rate when compared to the other two forms of competition available.

There were 540 competitive contracts examined in the database. Of these 540 contracts, 17 were labeled a failure, which yields a failure rate of 3.15%. The reasons that most often resulted in a contract failure were in the areas of schedule and cost control, which were each referenced seven times. The next highest referenced source of failure was management of key personnel, which was referenced six times. The failure rates due to level of competition are shown in Figure 25. Non-competitive contracts had the next highest failure rate at

2.91%. There were 172 non-competitive contracts in the database, of which five were labeled failures. Quality was referenced four times while schedule, management of key personnel, and business relations were each referenced twice. Contracts competed as *other* had three contracts in the database with zero labeled failures. The rating statistics across the levels of competition are shown in Figure 26.

Table 12. Level of Competition Total Successes and Failures

Level of Competition Categories	Total Successes	Total Failures	Total Contracts	Failure Rates
Basis (Competitive)	523	17	540	3.15%
Basis (Non-Competitive)	167	5	172	2.91%
Basis (Other)	3	0	3	0.00%
Total	**693**	**22**	**715**	**3.08%**

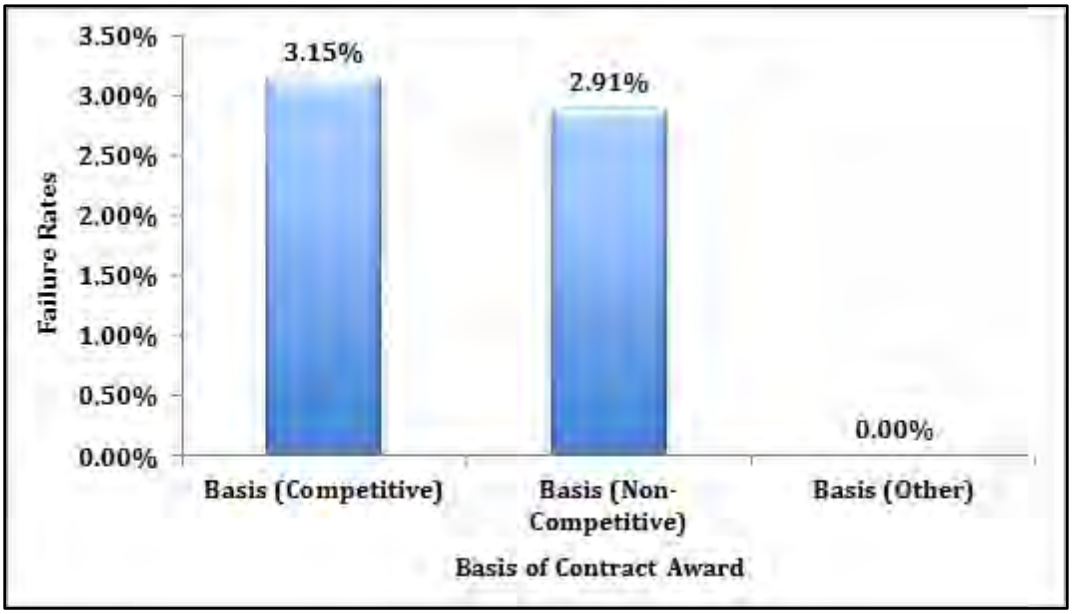

Figure 25. Failure Rates Among Level of Competition

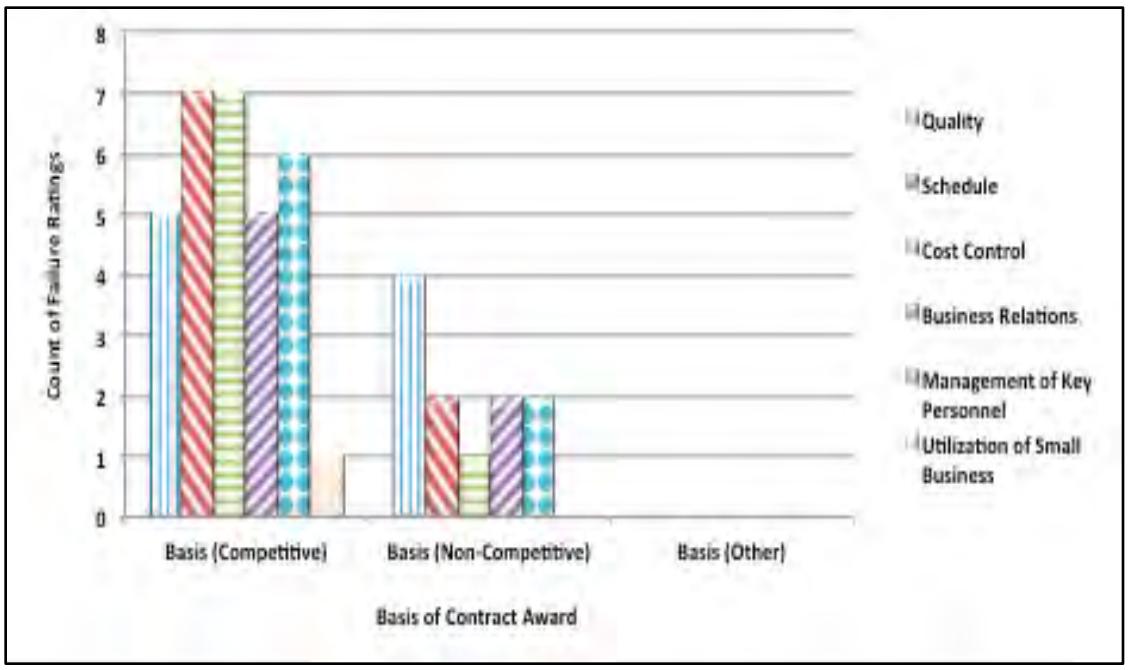

Figure 26. Levels of Competition Stated Reasons for Failure

5. Contract Type

The fourth research question is as follows: Does the contract type affect the success of a service contract? To answer this question, the researchers grouped the contracts into six categories: CPAF, combination, CPFF, CPIF, FFP, and *other*. The researchers looked at each of these categories separately and examined the failure rate of each group, as seen in Table 13.

Finding 4: Contracts structured as a combination contract had the highest failure rate when compared to the other five types of available contracts.

There were four combination contracts examined in the database. Of these four contracts, two were labeled failures, which yields a failure rate of 50.0%. Schedule and cost were both referenced twice in the failed contracts while quality and management of key personnel were each referenced once. The failure rates due to contract type are shown in Figure 27. Cost plus fixed fee contracts had the next highest failure rate at 5.56%. There were 36 CPFF contracts in the database, of which two were labeled failures. Cost control was

referenced twice and schedule was referenced once in the failed contracts. Contracts competed as cost plus award fee had 58 contracts in the database with three of them labeled as failures. This yielded a failure rate of 5.17%. Two of these failed contracts referenced cost control and business relations while one referenced the management of key personnel. Firm fixed price contracts had 524 contracts in the database with 14 of them labeled as failures. This yielded a failure rate of 2.68%. Seven of these failed contracts referenced quality while six referenced the management of key personnel. *Other* contract types had 89 contracts in the database with one labeled as a failure because of quality and schedule, which yielded a failure rate of 1.12%. There were four cost plus incentive fee contracts, which had zero labeled failures. The rating statistics among contract types are shown in Figure 28.

Table 13. Contract Type Total Successes and Failures

Contract Type Categories	Total Successes	Total Failures	Total Contracts	Failure Rates
Type (CPAF)	55	3	58	5.17%
Type (Combination)	2	2	4	50.00%
Type (CPFF)	34	2	36	5.56%
Type (CPIF)	4	0	4	0.00%
Type (FFP)	510	14	524	2.67%
Type (Other)	88	1	89	1.12%
Total	**693**	**22**	**715**	**3.08%**

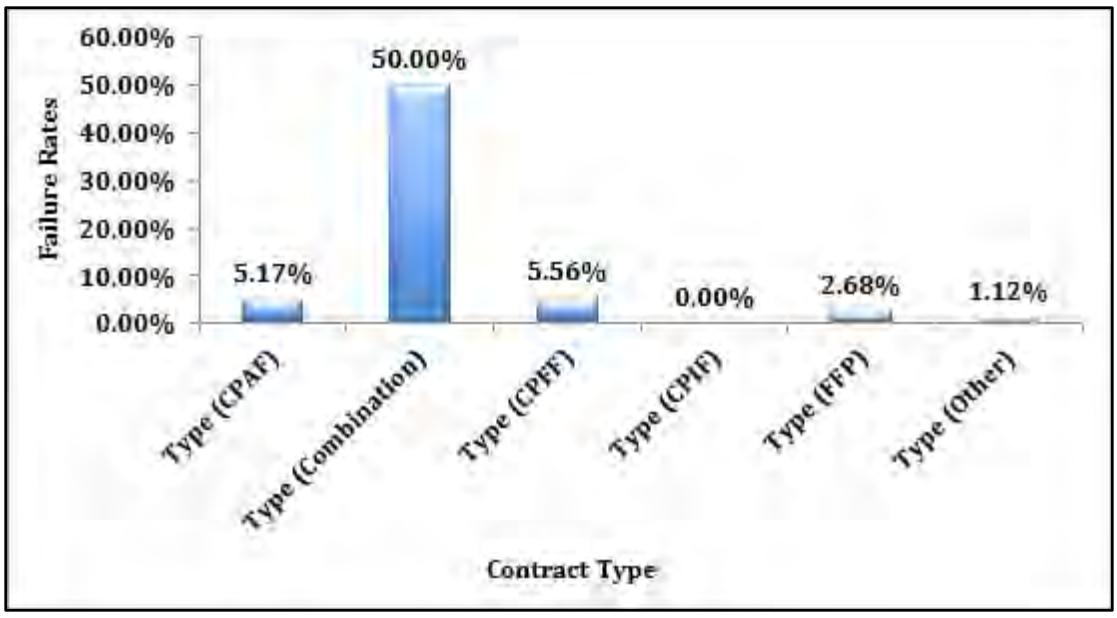

Figure 27. Contract Type Failure Rate

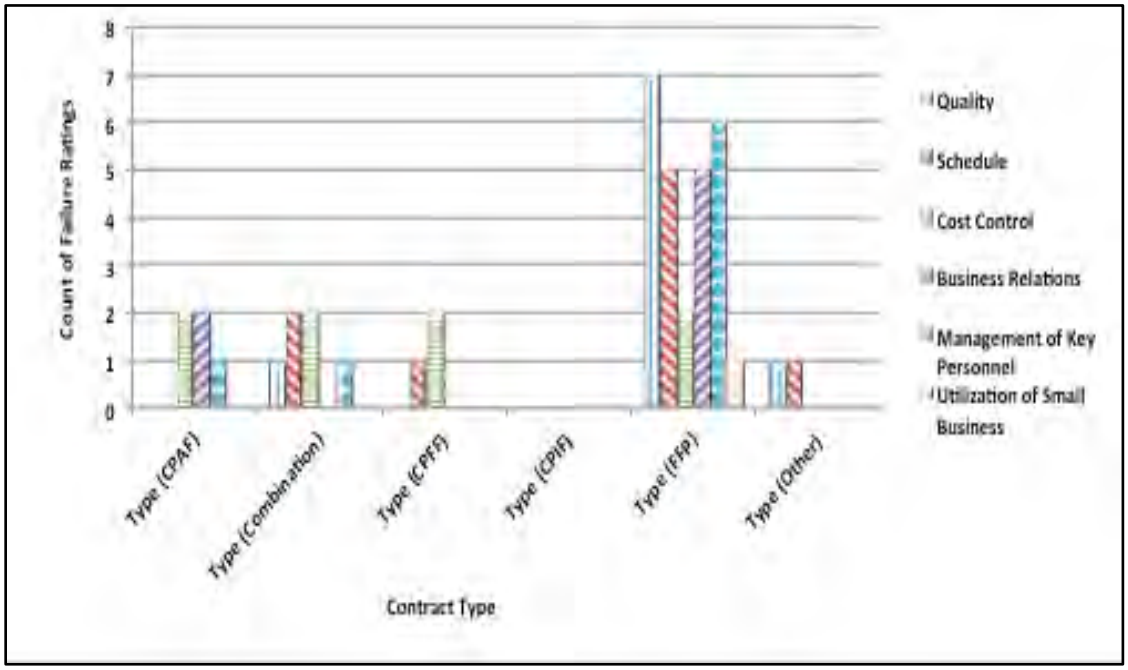

Figure 28. Contract Type Stated Reasons for Failure

D. ADDITIONAL ANALYSIS

1. Analysis Overview

The next section shows the results from the additional analysis the PPIRS database revealed. It includes the failure rates of the MICCs, duration of contracts, and the MICC organizational data. The organizational data includes the annual workload, number of actions, number of assigned 1102 billets, and the percent of those billets filled.

2. MICCs

The contracts examined came from the five different MICC regions described in Chapter III. The Fort Bragg regional office had 55 contracts, Fort Sam Houston had 189 contracts, Fort Knox had 119 contracts, Fort Hood had 114 contracts, and Fort Eustis had 238 contracts. The MICC regions and their associated data are shown in Table 12.

Finding 5: Contracts completed by Fort Hood had the highest failure rate compared to the other four MICC regions.

There were 114 contracts completed by Fort Hood examined in the database. Of these 114 contracts, six were labeled failures. This yields a failure rate of 5.26%. The reason that most often resulted in a contract being labeled a failure was in the area of quality, which was referenced four times. Schedule and business relations were each referenced three times. The failure rates across the MICCs are shown in Figure 29. Fort Knox had the next highest failure rate at 5.04%. There were 119 contracts from Fort Knox in the database, of which six were labeled failures. The reason stated for these contracts was most frequently in the area of management of key personnel, which was referenced three times. Quality, schedule, cost control, and business relations were each referenced twice. Fort Sam Houston had 189 contracts in the database with eight of them being labeled failures. This yielded a failure rate of 4.23%. The most commonly stated reason for a contract being determined a failure at Fort Sam Houston was in the area of cost control with five ratings. Schedule was the next most frequent

rating that resulted in a failure, which was referenced four times. Fort Bragg had a failure rate of 1.82% and included 55 contracts (with one labeled failure). The only rating that received a failure label from Fort Bragg was in the area of quality, but this result was driven from only one contract. Fort Eustis had the most contracts in the database at 238 (with only one labeled failure), but also had the lowest failure rate (0.42%) of any of the MICC contracts examined. The rating statistics across the MICCs are shown in Figure 30.

Table 14. MICCs Total Successes and Failures

MICC Categories	Total Successes	Total Failures	Total Contracts	Failure Rates
Fort Bragg	54	1	55	1.82%
Fort Sam Houston	181	8	189	4.23%
Fort Knox	113	6	119	5.04%
Fort Hood	108	6	114	5.26%
Fort Eustis	237	1	238	0.42%
Total	**693**	**22**	**715**	**3.08%**

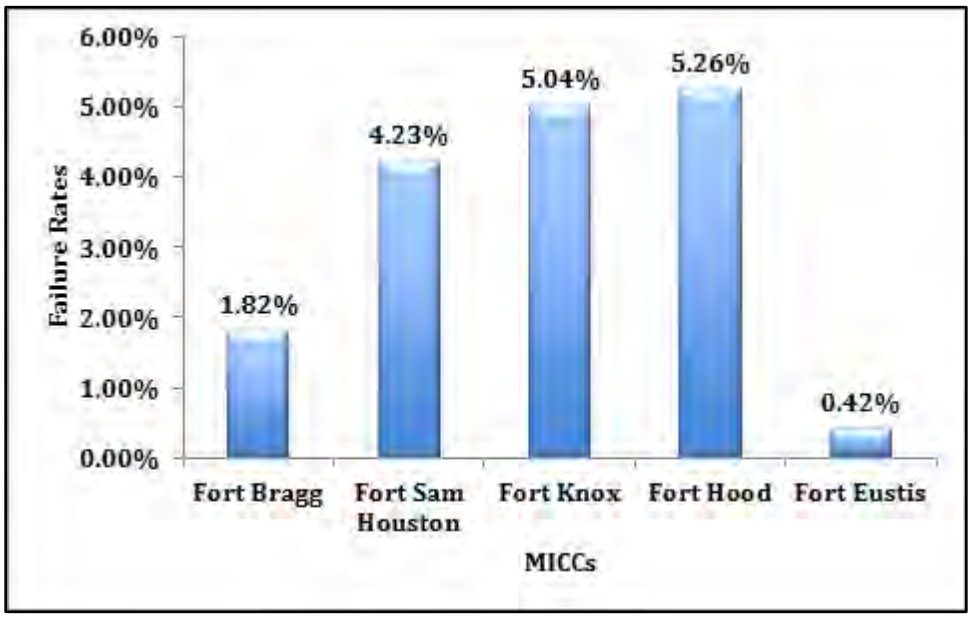

Figure 29. Failure Rates Among the MICCs

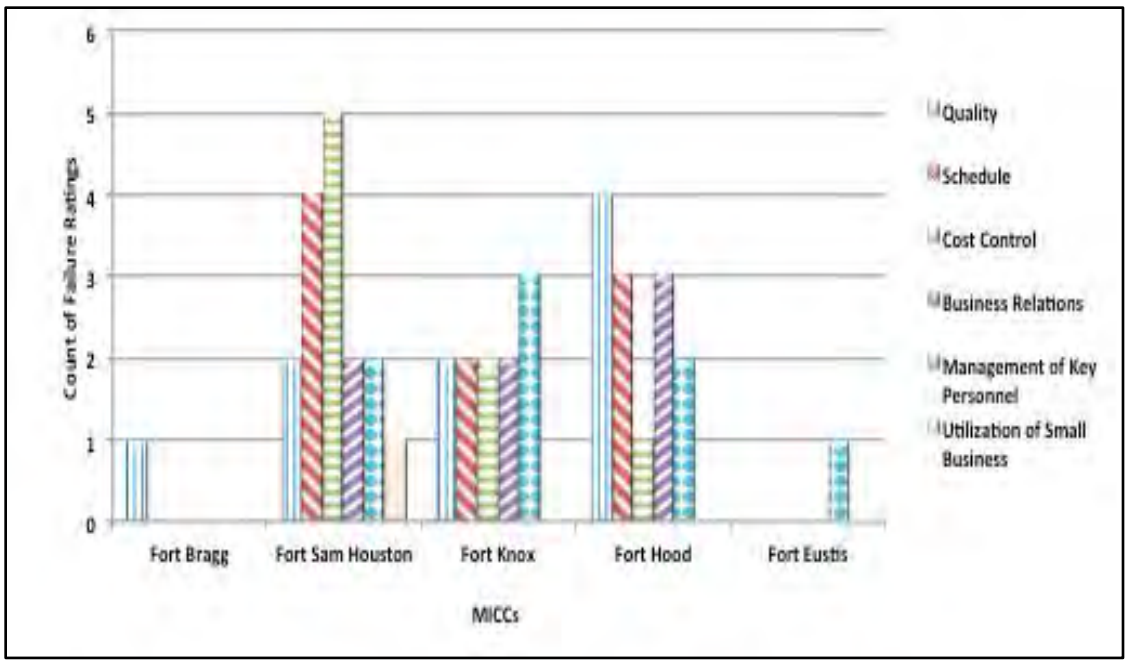

Figure 30. MICCs Stated Reason for Failures Among the Ratings

3. Duration

The duration of contracts span from zero to 1,246 days and occurred between 2006 and 2013. The days were broken into five different categories each containing 90 days. The final category contains contracts lasting over 365 days in duration. In the first category, zero to 90 days, there were 27 contracts. There were 25 contracts lasting between 91 and 180 days. The 181 to 270 category contained 52 contracts. The 271 to 365 day category contained the largest amount of contracts, at 542. There were 69 contracts lasting over 365 days. These numbers are clearly seen in Table 13.

Finding 6: Contracts with a duration between 0–90 days had the highest failure rate compared to the other four contract durations analyzed.

There were 27 0–90 day contracts examined in the database. Of these 27 contracts, two were labeled failures as defined within the parameters of this research, which yields a failure rate of 7.41%. Quality, schedule, and cost control were each referenced once in the failed contracts. The failure rates because of contract duration are shown in Figure 31. 271–365 day contracts had the next

highest failure rate at 3.32%. There were 542 271–365 day contracts in the database, of which 18 were labeled failures. Quality, cost control, and the management of key personnel were each referenced seven times while schedule and business relations were each referenced six times in the failed contracts. 181–270 day contracts had 52 contracts in the database with one labeled failure. This yielded a failure rate of 1.92%. The failed contract referenced schedule, business relations, and the management of key personnel. Contracts in excess of 365 days had 69 contracts in the database with one labeled failure. This yielded a failure rate of 1.45%. The failed contract referenced quality and schedule. Contracts between 91–180 days had 25 contracts in the database with no labeled failures. The rating statistics among contract types are shown in Figure 32.

Table 15. Duration Total Successes and Failures

Contract Duration Categories	Total Successes	Total Failures	Total Contracts	Failure Rates
0–90	25	2	27	7.41%
91–180	25	0	25	0.00%
181–270	51	1	52	1.92%
271–365	524	18	542	3.32%
>365	68	1	69	1.45%
Total	**693**	**22**	**715**	**3.08%**

Figure 31. Contract Duration Failure Rates

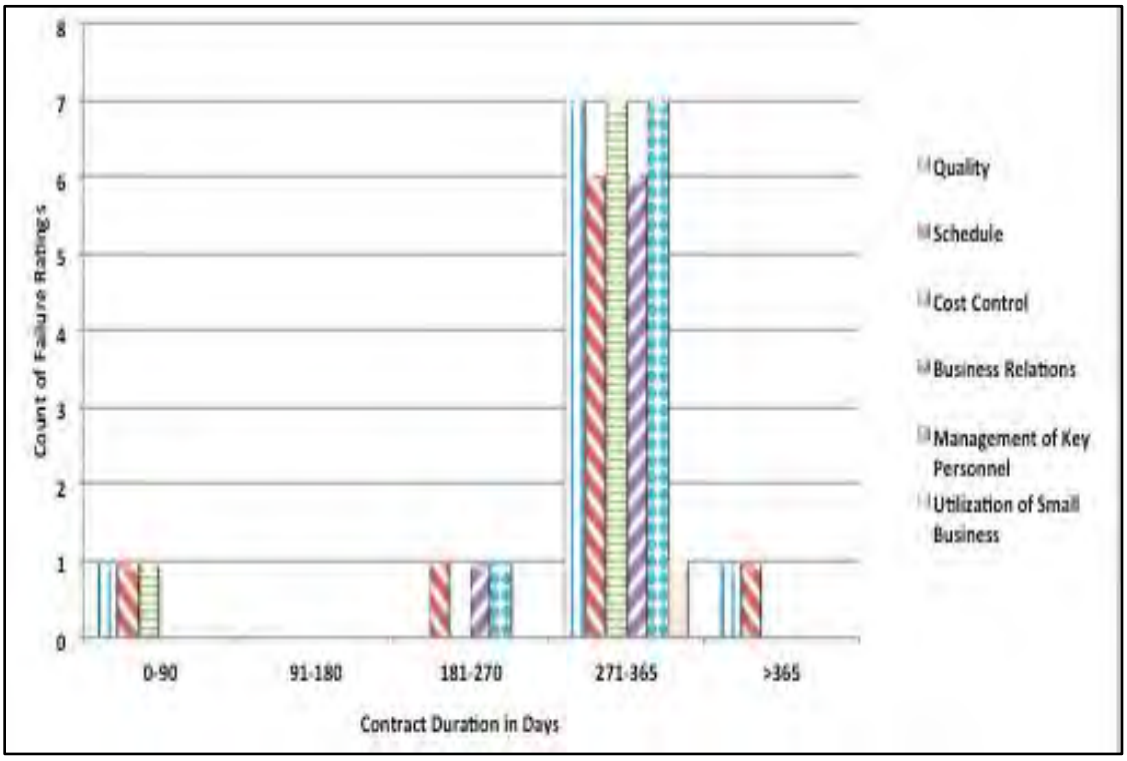

Figure 32. Contract Duration Stated Reasons for Failure

4. Contracts Completed by Year

The years were categorized based on their completion year, and ranged from 2006 to 2013. There were seven contracts in 2006, 18 in 2007, 51 in 2008, 94 in 2009, 165 in 2010, 175 in 2011, 185 in 2012, and 20 in 2013. These numbers are clearly shown in Table 16.

Finding 7: 2007 had the highest failure rate of all the years analyzed.

There was one 2007 contract labeled a failure, giving that group a 5.56% failure rate (see Figure 33). In 2007 there were 18 contracts listed in PPIRS for the services analyzed (see Table 16). This is a small sample, allowing the one failure to put it above the average total contract failure rate of 3.08%. The contract that failed for this year failed for its business relations and cost control (see Figure 34). The first year analyzed was 2006 and consisted of a small data group. There were only seven contracts in the data from this year. There were not any contracts labeled as failures, giving that group a 0% failure rate (see Figure 33). There were 51 contracts listed in PPIRS for the 2008-year group. There were two labeled failures for this year, giving 2008 a failure rate of 3.92% (see Figure 33). This rate is higher than the total contract average of 3.08%. The two failures were given three reasons for their failures (see Figure 34): quality, cost control, and business relations. In 2009 there were 94 contracts entered into PPIRS. There were five labeled failures, giving 2009 a 5.32% failure rate (see Figure 33). The 2009 group's failure rate was higher than the total contract failure rate of 3.08%. The failing contracts for this year listed four reasons for failing. The most common reason for failure of these contracts was quality (see Figure 34). Three other reasons were listed and they were business relations, management of key personnel, and utilization of small business. During 2010, the number of contracts entered into PPIRS grew to 165 contracts (see Table 14). There were four contracts labeled as failures, giving the year a 2.42% failure rate (see Figure 33). This year was under the total contract average failure rate of 3.08%. The most common reasons for failure for 2010 were quality and scheduling (see Figure 34). While not the most common reasons for failing, there

were three other supporting reasons contracts failed during this year. They were cost control, business relations, and management of key personnel. The research showed 175 contracts inputted into PPIRS in 2011. During this year there were five labeled failures, giving 2011 a failure rate of 2.86% (see Figure 33). The year 2011 showed that its failure rate was well below the average total contract failure rate of 3.08%. The most common reason for failure in 2011 was for scheduling problems (see Figure 34). This reason was listed for all five of the failures. There were other reasons for failure, such as quality, cost control, business relations, and management of key personnel. In 2012 there were a total of 185 contracts, which included four labeled failures, giving 2012 a failure rate of 2.16%, which is below the total contract average of 3.08% (see Figure 33). The most common reason for failure of these contracts was for scheduling (see Figure 34). Scheduling failures were listed for two of the contracts. The other reasons for failure were quality, cost control, business relations, and management of key personnel. During 2013 there were 20 contracts entered into PPIRS. There was one labeled a failure, giving 2013 a failure rate of 5% (see Figure 33). This failure rate is higher than the total contract average of 3.08%. The reason for the failure in 2013 was cost control (see Figure 34).

Table 16. Ending Year Total Successes and Failures

Ending Year Total Categories	Total Successes	Total Failures	Total Contracts	Failure Rates
2006	7	0	7	0.00%
2007	17	1	18	5.56%
2008	49	2	51	3.92%
2009	89	5	94	5.32%
2010	161	4	165	2.42%
2011	170	5	175	2.86%
2012	181	4	185	2.16%
2013	19	1	20	5.00%
Total	**693**	**22**	**715**	**3.08%**

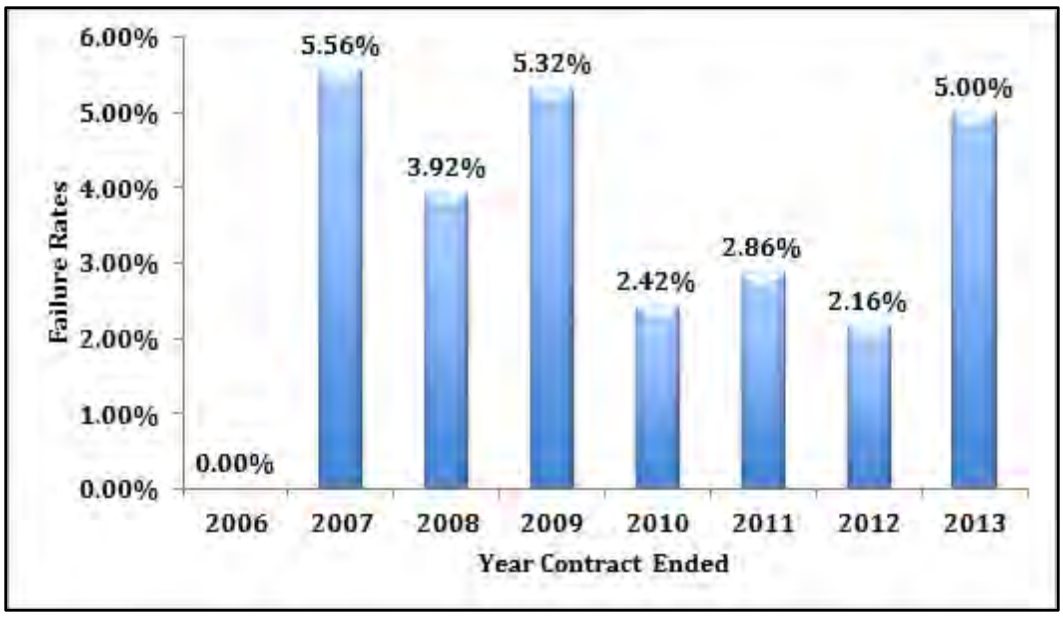

Figure 33. Failure Rate by Year

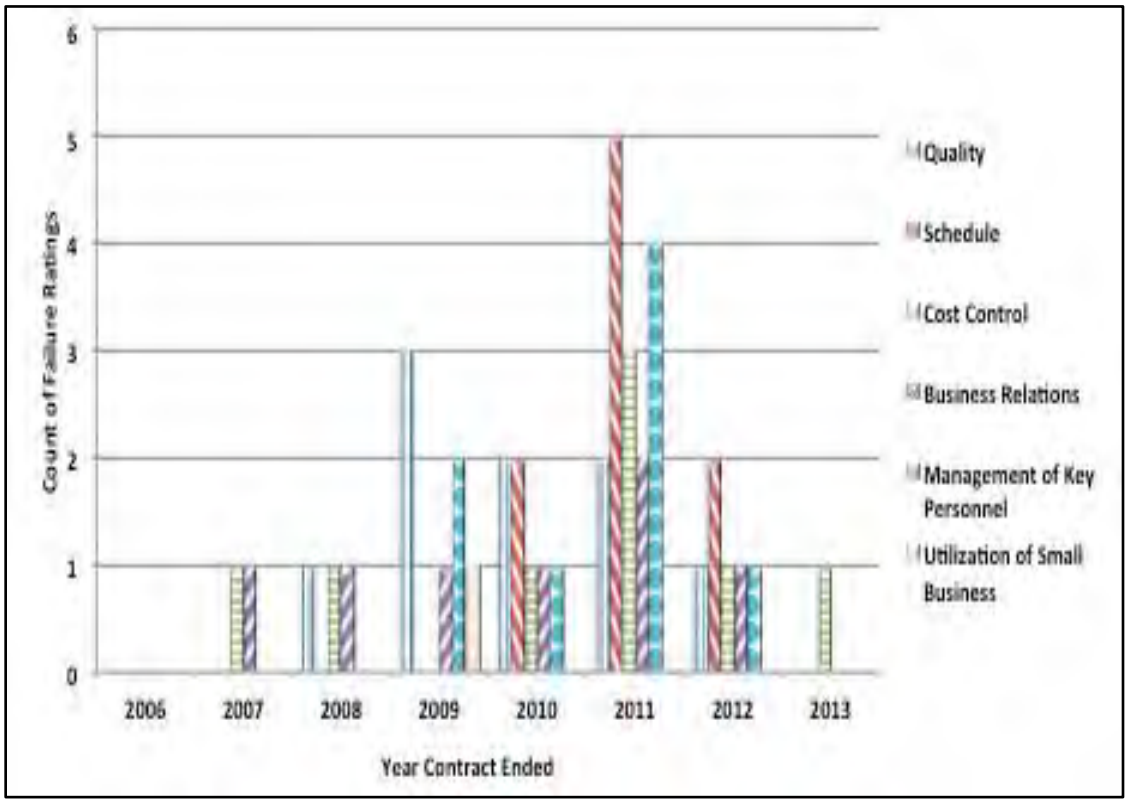

Figure 34. Reasons for Failure by Year

5. Annual Workload Amount in Dollars

Regional MICC office annual workload in dollars spent was grouped into three categories. The categories consisted of contract totals between $0 and $500 million, contracts greater than $500 million to $1 billion, and contracts greater than $1 billion. The first category consisted of 344 contracts, the second category had 256, and the final category contained 115 contracts. These figures are shown in Table 17.

Finding 8: Regional MICC offices that had spent between $0 and $500 million in annual workload had the highest failure rate.

The failure rate for the MICC regions between $0 and $500 million in annual workload had failure rate of 4.36%. These rates are shown in Figure 35. The primary reason stated for failure was schedule for the 0–$500 million category. The second category had 256 with a failure rate of 2.34%. Management of key personnel was stated as the reason for failures for category two and the final category contained 115 contracts with only one of them being labeled a failure, giving the category a 0.87% failure rate. The final category's only labeled failure listed cost control and business relations as the reason for failure. These results are shown in Figure 36.

Table 17. Annual Workload in Dollars Total Success and Failures

Contract Dollar Amount Categories	Total Successes	Total Failures	Total Contracts	Failure Rates
$0-$500M	329	15	344	4.36%
>$500M-$1B	250	6	256	2.34%
>$1B	114	1	115	0.87%
Total	**693**	**22**	**715**	**3.08%**

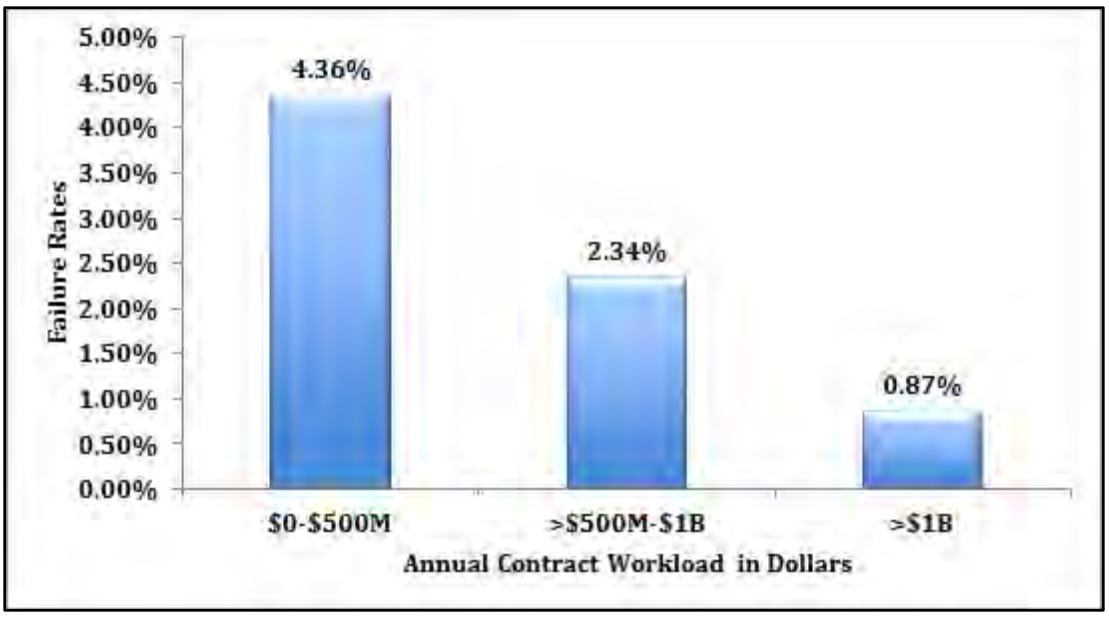

Figure 35. Annual Workload in Dollars Failure Rates

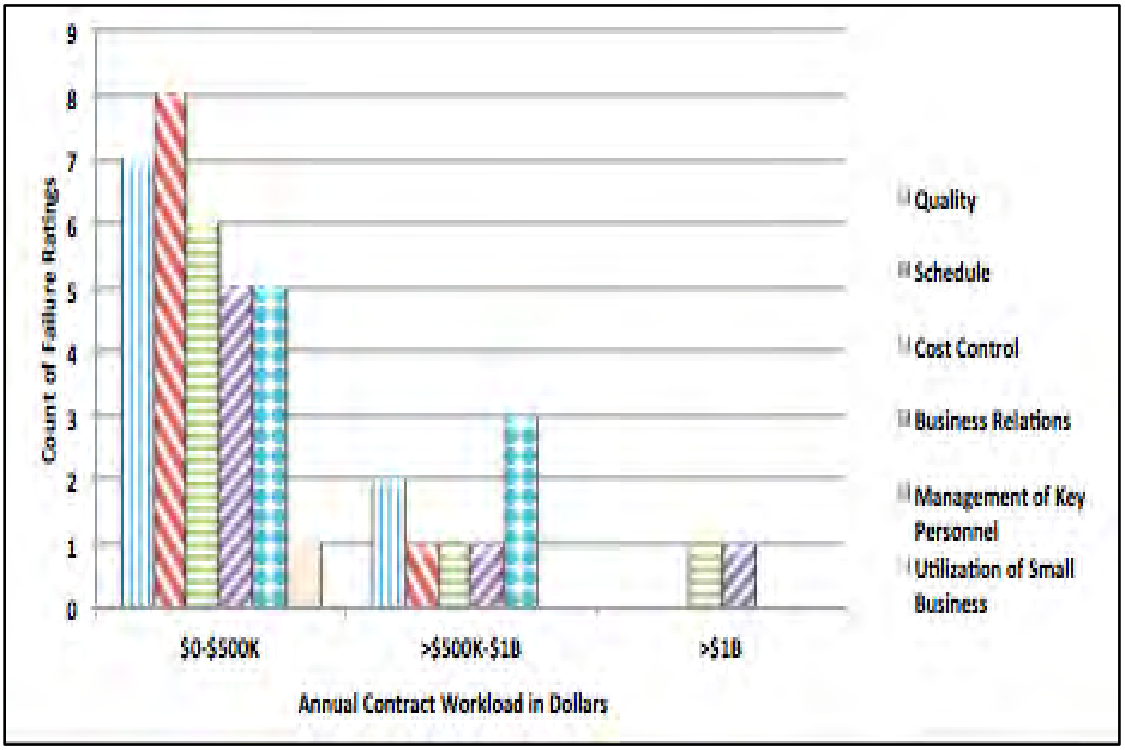

Figure 36. Annual Workload in Dollars Stated Reason for Failures Among the Ratings

6. Number of Actions Completed

The number of actions a MICC completed in a year was separated into two different categories. The first category ranged from zero to 3,500 contracts. The second category ranged from 3,501 to 7,000 contracts. These categories can be seen in Table 18.

Finding 9: Contracts managed by a MICC that completed 3,501–7,000 contracts annually had the highest failure rate when compared to MICCs that completed 3,500 or fewer contracts annually.

There were 277 contracts in this category in the database. Of these 277 contracts, nine were labeled as failures, which yields a failure rate of 3.25% (see Figure 37). Quality and the management of key personnel were each referenced five times in the failed contracts. The failure rates because of number of completed contracts annually are shown in Figure 37. Contracts completed in a MICC that completed 3500 or fewer contracts annually had the next highest failure rate at 2.91%. There were 413 of these contracts in the database, of which 12 were labeled as failures. Schedule and cost control were each referenced five times while quality was referenced four times in the failed contracts. There was no data available for 25 contracts, of which one was labeled a failure. The rating statistics among contract types are shown in Figure 38.

Table 18. Number of Actions Total Success and Failures

Number of Actions Categories	Total Successes	Total Failures	Total Contracts	Failure Rates
0–3500	401	12	413	2.91%
3501–7000	268	9	277	3.25%
Data not available	24	1	25	4.00%
Total	**693**	**22**	**715**	**3.08%**

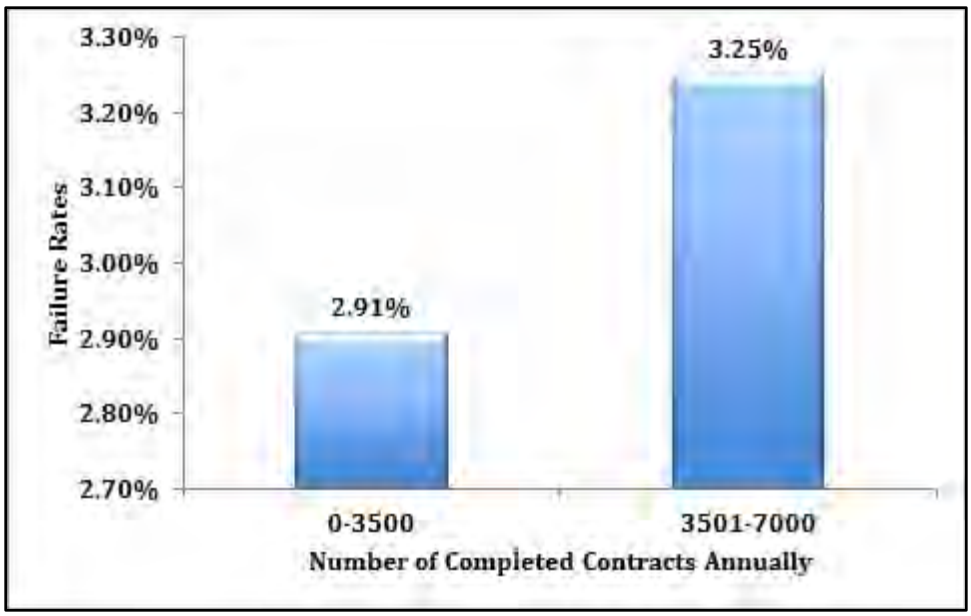

Figure 37. Failure Rates by Number of Completed Contracts Annually

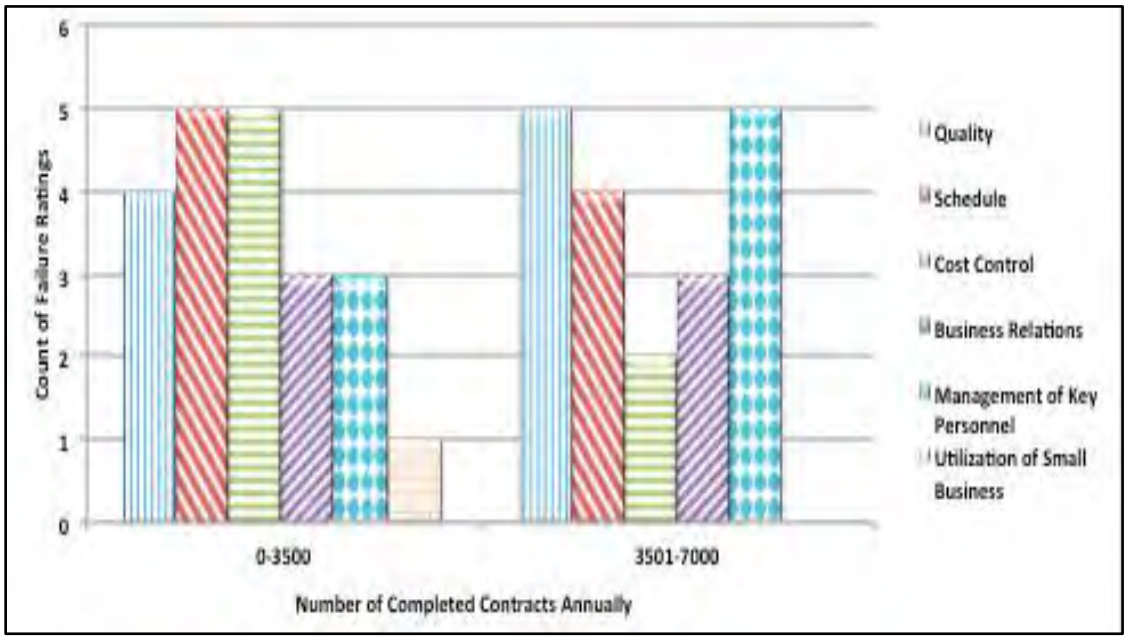

Figure 38. Number of Completed Contracts Annually Stated Reasons for Failure

7. Authorized 1102 Billets

There were 147 contracts that were completed by MICCs that had between zero and 50 authorized 1102 billets, 543 contracts that had over 50

authorized 1102 billets, and 25 contracts with no data available. These figures are shown in Table 19.

Finding 10: The category with 0–50 1102 billets had the highest failure rate.

This category had 147 total contracts with eight failures, giving it a failure rate of 5.44% (see Figure 39). The common reason for these failures was quality. This reason was listed for five of the eight-labeled failed contracts. The next category that contained 51–105 1102 authorized billets had 543 total contracts. This category had 13 failures, giving this group a 2.39% failure rate. The most common reason for failure listed for this group was schedule. This reason was listed seven times out of the 13 labeled failed contracts. The final group did not have data on authorized billets. This group contained 25 total contracts with one failure, giving this category a 4% failure rate.

Table 19. Authorized 1102 Billets Total Success and Failures

Authorized 1102 Billets Categories	Total Successes	Total Failures	Total Contracts	Failure Rates
0–50	139	8	147	5.44%
51–105	530	13	543	2.39%
Data not available	24	1	25	4.00%
Total	**693**	**22**	**715**	**3.08%**

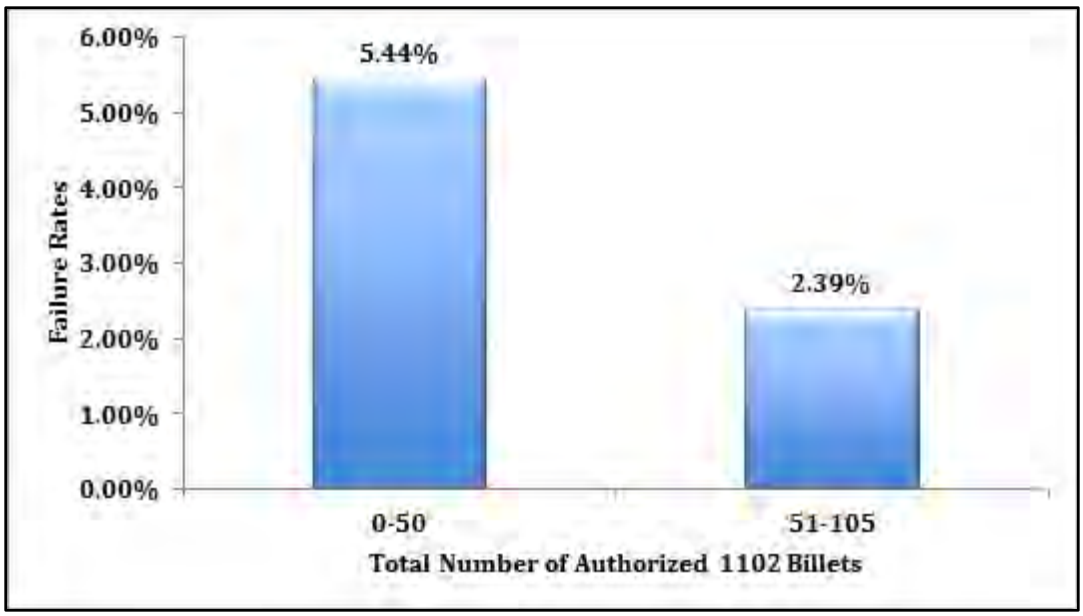

Figure 39. Failure Rates of MICCs by 1102 Billet Authorizations

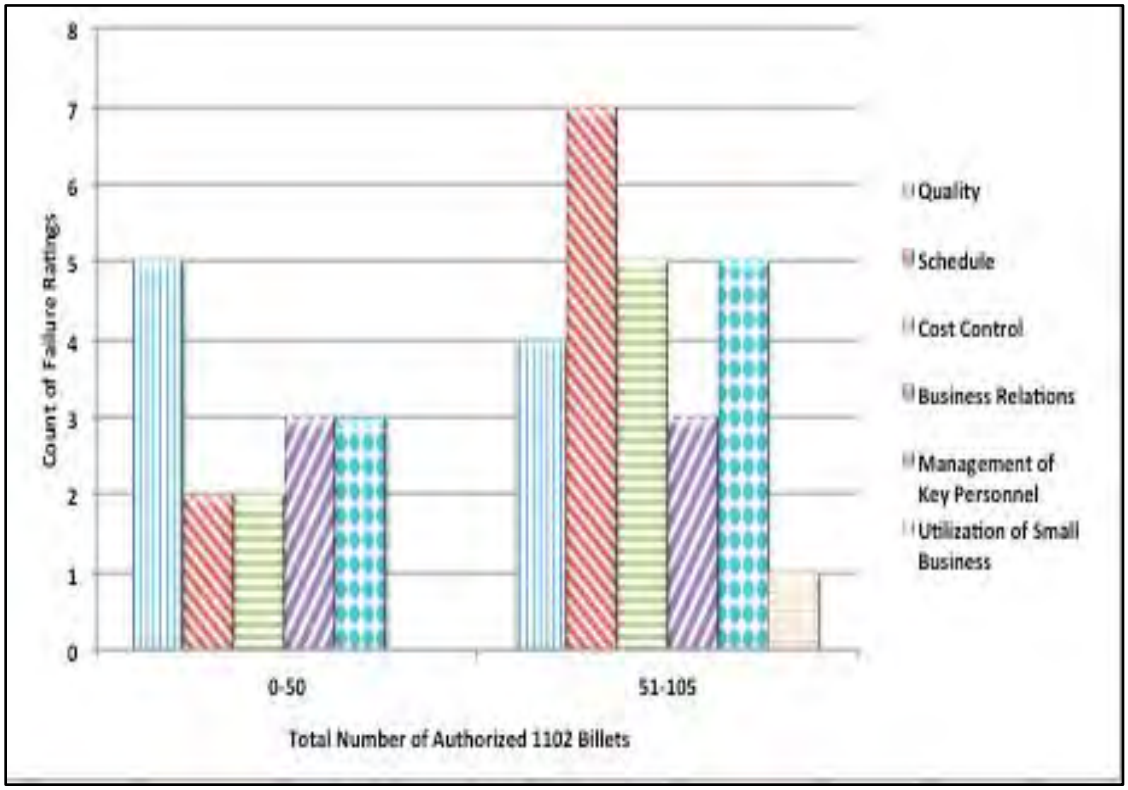

Figure 40. Reasons for Failures by Billet Authorization

8. Percentage of 1102 Billets Filled

To analyze how 1102 vacancies affect contract success, the PPIRS contract data was broken into six groups. These groups consisted of MICC regions that had billets 50–60% filled, 61–70% filled, 71–80% filled, 81–89% filled, 90–100% filled, and there was contract data that did not contain adequate billet information.

Finding 11: The group of 1102 billets that were 60–70% filled had the highest failure rate among this variable's categories.

The 60–70% group had a 4.94% failure rate (see Table 20 and Figure 41). The group of 1102 billets that were 61–70% filled had 81 total contracts. The most common reasons listed for this group to fail were schedule and cost control (see Figure 42). The group of 1102 billets that were 50–60% filled contained data for 22 total contracts. This group had one labeled a failure, which gave this group a 4.55% failure rate. This rate is higher than the total contract average of 3.08%. The reason for the failure in this group was quality, scheduling, and management of key personnel. The next group of 1102 billets that were 71%–80% filled consisted of 122 total contracts. There were five contracts labeled as failures, which gave this group a 4.1% failure rate. This group was higher than the total contract failure rate of 3.08%. The most common reasons listed for the failure of the contracts were schedule and cost control. The group that contained billets filled 81%–89% had 233 contracts with five labeled a failure. The five failures gave this group a 2.15% failure rate. This group fell below the total contract failure rate of 3.08%. The most common reasons for failure of these contracts were quality, schedule, and business relations. The data for the final group that had billets 90%–100% filled consisted of 99 total contracts. This group contained one labeled a failure, giving this group a failure rate of 1.01%. The group failure rate was well below the total contracting failure rate of 3.08%. The reason for the failure in this group was management of key personnel.

Table 20. Percentage of 1102 Billets Filled Total Success and Failures

Percentage of 1102 Billet Filled Categories	Total Successes	Total Failures	Total Contracts	Failure Rates
50–60%	21	1	22	4.55%
61–70%	77	4	81	4.94%
71–80%	117	5	122	4.10%
81–89%	228	5	233	2.15%
90–100%	98	1	99	1.01%
Data not available	152	6	158	0.00%
Total	**693**	**22**	**715**	**3.08%**

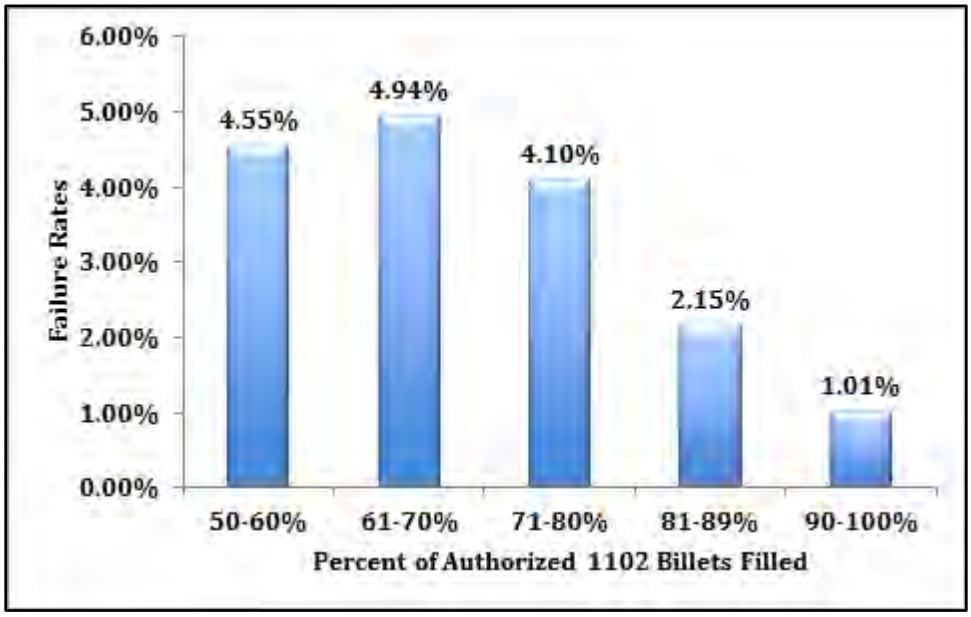

Figure 41. Failure Rate for Different 1102 Billet Vacancy Groups

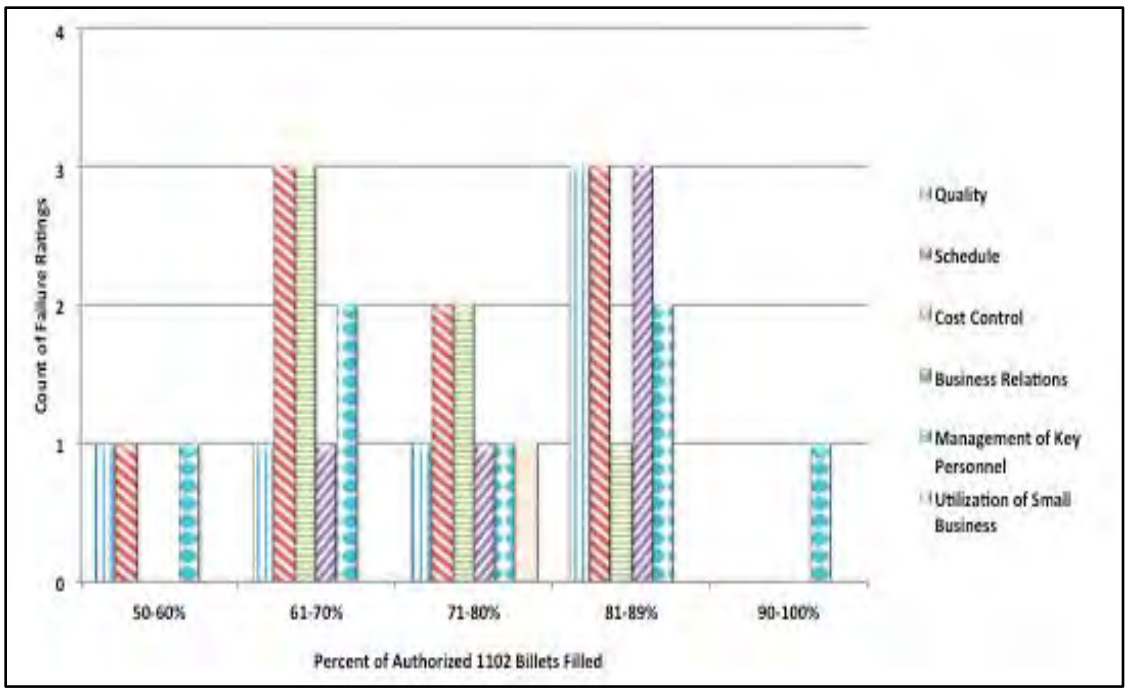

Figure 42. Reasons for Failures of Different 1102 Vacancy Groups

E. SIGNIFICANCE TESTING

The research results were analyzed further by seeing if the actual failure rates are significantly different than what would be expected if the total contract failure rate was applied to each variable. The Chi Square test (Fisher's exact test) was used to test the different variables. The null hypothesis for this test is that the category failure rates within the variables are not significantly different than the total contract failure rate (3.08%). The null hypothesis is rejected if the p-value for the variable is less than 0.05.

This test showed only three variables that had categories that were significantly different when the average total contract failure rate was applied to the variable and category (3.08%). These variables were contract amount (p= .036), contract type (p =.009), and contracts completed by MICC region (p=.011). The biggest reason for a significant finding for contact amount was the category of $50 million– $1 billion. If the total contract failure rate were applied to this category, it would have expected to fail one time, but in actuality it had eight

failures. Within the contract type variable, three contract types had a higher difference than what would have been expected. Combination type contracts (contracts that used a combination of CPAF, CPFF, and FFP together) was expected to have 0.1 failures, but actually had two. FFP type contracts were expected to have 16, but had 14. *Other* type contracts (such as labor hours and time and materials) was expected to have three failures, but only had one. The final variable that showed a significant difference was contracts by MICC region. There were three reasons that showed a significant difference than what was expected and the actual failures. Ft. Eustis was expected to have 7.3 failures, but only had one. Ft. Knox and Ft. Hood categories were both expected to have 3.5 failures, but had six failures each.

Table 21. Chi Square and Fisher's Exact P-Value Test Results

Contract Variables	p-value	Significant?
Type of Service (RJSD)	0.761	No
Contractual Amounts	0.036	Yes
Level of Competition	1.00	No
Contract Type	0.009	Yes
MICC	0.011	Yes
Duration	0.567	No
End Year	0.619	No
Annual Workload in Dollars	0.142	No
Number of Completed Actions	0.709	No
Number of Authorized 1102 Billets	0.098	No
Percent of 1102 billets Filled	0.301	No

The remainder of the variables showed a p-value greater than 0.05 (see Table 21). This means the null hypothesis is not rejected. While the results of the different categories' failure rates fluctuated, they were not significantly different from the total contract failure rate. These fluctuations could be from acceptable randomness within the data. The following section discusses the results and managerial implications from the research analysis and potential areas the DoD can focus on to reduce the failure rates of specific service contracts.

F. DISCUSSION OF RESULTS AND MANAGERIAL IMPLICATIONS

1. Discussion Overview

The purpose of this research is to identify variables in the service contracting process that promote successful service contracts. This section examines possible reasons for the results found in the research. It also considers each variable the researchers found extraordinary and the categories of these variables. Failed contracts are examined by looking at the Service Acquisition Process covered in Chapter II, and this section discusses where these failures could be addressed to assist government contracting agencies. In discussing the implications of the research, it had to be assumed that the contract was proper (based on fair and reasonable price and accurately reflecting schedule and performance requirements) in terms of the requiring agencies' needs. This allowed proper contract administration to discover deficiencies with the contractor's work and proper documentation into CPARS.

- **Finding 1: The S type contracts had the highest failure rate of all the product service codes analyzed.**

The first variable discussed is how the different service types affected the success of a contract. It was found that the types of services were not significantly different than the overall total contract failure rate. Even though contract types are not shown to be statistically significant in terms of affecting contract success, it was observed that utilities and housekeeping (S) failed six times for business relations and six times for management of key personnel out of the 11 reported failures. The business relation's assessment contains the assessment of the contractors' ability to coordinate their business activities, such as their attitude towards customers, customer satisfaction, and their cooperation (DoD, 2011). The business relation's category could be more closely addressed during the Planning Phase of the service acquisition process. Step three of this process is Market Research. One possible way of mitigating future failures of this type is to ensure that the contracting agency gives this step extra attention. This

step contains seven sub-elements that ensure the acquisition team has a detailed understanding of current market practices in the area of the service being provided. This will assist with making performance requirements more attainable for the contractor (DoD, 2012). The next common failure for utilities and housekeeping services was the management of key personnel. This assessment area measures the contractor's ability to maintain qualified individuals in key positions as outlined in the contract (DoD, 2011). These numbers suggest that the contracting agency should focus on the Execution Phase of the process and give extra attention to the Execute Strategy step. This phase and step goes from the issuance of the RFP to the Post Award implementation/transition. Within this step is the source selection. Prior to conducting the source selection process, the acquisition team needs to ensure that the source selection evaluators (SSE) are properly trained. The team must also ensure that the SSEs understand how to properly evaluate the offeror's management proposal. This proposal gives the offeror's breakdown of key personnel that will be involved in the contract.

- **Finding 2: The contract grouping that consisted of contracts worth a dollar amount greater than $50 million– $1 billion had the highest failure rate of all the groups in the analysis.**

As discussed in the previous section, this variable proved to have a significant impact on service contracting success. The category within this variable appearing to be the most significant was the category containing contracts greater than $50 million–$1 billion. This group had the highest failure rate at 8.7%. The most common reason for this failure was cost control. The cost control rating contains an assessment of the contractors' ability to "forecast, manage, and control the cost" associated with conducting their services (DoD, 2011, p. A3–7). Again, this research assumes that the contractor was provided a proper contract, which in turn allowed proper contract administration that resulted in an identified cost control failure documented in CPARS. This leads one to assume that a contract was awarded to a business that was not able to perform

the cost control function sufficiently. This leads back to the Execute Phase and Execute Strategy Step needing extra attention to mitigate future failures. The acquisition team needs to ensure that all SSEs are properly trained on how to accurately evaluate the cost proposals to ensure the business fully understands the contract requirements. If the cost proposal is not properly evaluated, a contractor may be awarded the contract that does not fully grasp the contract requirements leading to future cost overruns. Another category within this data was worth analyzing: The group that contained contract dollar amounts greater than $1 million–$10 million. While this category's failure rate was actually one of the lowest failure rates (2.15%), the reason for its failure appears to be important for analysis. This category had a total of 10 failures. Of these 10 failures, seven were listed for quality reasons. The quality assessment factor contains an evaluation of the contractor's qualitative performance and compares it to the requirements stated in the contract (DoD, 2011). Since these contract failures were proper contracts allowing proper documentation in to CPARS, the acquisition team needs to ensure they focus on training of their SSEs. Acquisition teams that are a part of contracts within this dollar amount need to focus the Execute Phase and Execute Strategy step of the Services Acquisition Process. They need to ensure their SSEs are properly trained and can evaluate the contractor's technical proposal. This proposal will help the acquisition team's understanding of the contractor's plan to complete the quality requirements in the contract.

- **Finding 3: Contracts competed competitively had the highest failure rate when compared to the other two forms of competition available.**

Competitively competed contracts had the highest of the category's failure rates at 3.15%. These contracts most often failed because of quality and schedule. While out of 523 contracts only 17 failed, this gave the category a slightly higher failure rate than the total contract failure rate of 3.08%. This category failed seven times for scheduling reasons and seven times for cost

control. The numbers in these two areas suggest the Execute Phase and the Execute Strategy step in the Service Acquisition Process needs to be scrutinized. The acquisition team needs to ensure proper training of the SSEs on how to properly evaluate the contractor's cost proposal and technical proposal. These proposals show sufficient understanding to successfully fulfill the contract's requirements. If the cost proposal is not adequately evaluated, this may result in future cost overruns. Inadequate evaluation of the contractor's technical proposal could result in the contractor's inability to meet scheduling requirements.

- **Finding 4: Contracts structured as a combination contract had the highest failure rate when compared to the other five types of available contracts.**

The contract type variable was significant on the outcome of the service contract. There are three categories worth mentioning in this variable. They are the combination, CPAF, and CPIF. The combination contract type showed a failure rate of 50%. This could be because of the relatively low number of this contract type in the data. The data consisted of only four contracts and two of these showed failures. The other two categories (CPAF-5.17%, CPFF- 5.56%) showed a failure rate nearly double that of the next lowest category (FFP, 2.67%). Contracting officers using these types of contract vehicles for their procurement of services should be aware of these failure rates. The leading and reoccurring theme among all three of these categories was cost control. The cost type contracts places more financial responsibility on the government. These contract vehicles should be avoided when the requirements of the service allow for a FFP contract. To gain better knowledge and build better requirements to allow for a FFP contract, Step 2: Review Current Strategy of the Planning Phase could help mitigate the use of cost-based contracts. This step involves analyzing requirements and desired results of current ongoing service contracts and attempts to draw parallels to gather necessary information to develop exact requirements needed by the service. Thorough execution of Step 3: Market Research in the Planning Phase could also assist with moving away from the use of these cost-based contracts and place more cost responsibility on the contractor. Market research entails gaining a detailed understanding of what the

marketplace associated with the service can provide. This understanding assists the acquisition team and avoids wasting taxpayer dollars (DoD, 2012). The acquisition team needs to examine the Execute Strategy in the Execute Phase and ensure proper training of its SSEs. The cost proposals of these cost contracts may not have been evaluated correctly. Without proper evaluation a contractor without adequate understanding of the requirements may be awarded the contract. This will lead to a greater possibility of cost overruns.

- **Finding 5: Contracts completed by Fort Hood had the highest failure rate compared to the other four MICC regions.**

The MICC region variable was examined and was shown to have a significant effect on the success of service contracts. There were three reasons that showed a significant difference in the expected category failures and the actual failures. Ft. Hood and Ft. Knox regional categories both were expected to have 3.5 failures but actually had six failures. Ft. Hood had the highest failure rates, and at first glance, this finding may appear to be negative. This finding may have resulted from the proper use and documentation within the CPARS system, thus showing a more realistic outcome of contracting results. This MICC region may have more CORs assigned to contracts under their control allowing for better oversight and assessing contract failure when appropriate. The most cited reason for failure in this region was for quality. Acquisition teams within this region may want to examine how the technical proposals are being evaluated in the Execution Strategy step. They need to ensure their SSEs are properly trained to mitigate future failures for quality reasons. Ft. Knox did not have a pattern for reasons of failure. They were fairly evenly distributed and did not show a possible weakness in the process to be improved. The next MICC region that appeared significant was Ft. Eustis. The Ft. Eustis region fell significantly below the expected failure rate. This finding also may be because of manning shortages or training deficiencies. This region may not have the CORs to enforce proper contract administration and show deficient past performance records through CPARS.

- **Finding 6: Contracts with a duration between 0–90 days had the highest failure rate compared to the other four contact durations analyzed.**

As discussed in the previous section, contract duration was found not to have any significantly different failure rates than the total contract failure rate. The first category of contracts with a duration of 0–90 days had a failure rate of 7.41%. The small sample size explains this high failure rate. The 271–365 day contractual duration had failures for all the reasons listed that was almost evenly distributed. The data did not show that duration was meaningful to the success of a service contract.

- **Finding 7: 2007 had the highest failure rate of all the years analyzed.**

After the significance test was completed on this variable it showed that it was not significantly different than the total contract failure rate. While not significant, the year 2007 had 18 contracts with one failure, giving it the highest failure rate at 5.56%. It failed one time for cost control and business relations. This high failure rate appears to be the result of a small sample size. The year 2011 had a lower failure rate than most of the other years included in the data. The data showed 2011 had five failed contracts. All of these failures also had schedule listed as a failed evaluation criteria. This criterion is an assessment of the ability of the contractor to meet schedules outlined in the contract such as "task orders, milestones, schedules, and administrative requirements" (DoD, 2012, p. A3-7). These failures may have been mitigated through a more thorough contracting process such as conducting a more deliberate execution phase. This phase consist of the pre-solicitation conference giving the contractor and agency requiring the service a more common understanding of expectations and requirements (Apte et al., 2006). These findings may also show that in 2011 the planning phase and development phase was conducted more thoroughly than in previous years, allowing the agencies to better conduct contract administration and hold the contractors responsible for scheduling deficiencies and

documenting these deficiencies in CPARS. The 2012 and 2013 year groups show a decline in scheduling failures, allowing one to assume agencies and contractors were able to come to a better common understanding of scheduling requirements.

- **Finding 8: Regional MICC offices that had spent between 0 and $500 million in annual workload had the highest failure rate.**

Regional MICC offices that did between 0–$500 million in annual workload had the highest failure rate at 4.36%. Its most common reasons for failure were schedule and quality. To mitigate future failures in the same areas, acquisition teams should focus on the Execution Phase and Execution Strategy step within the Service Acquisition Process. This step is the source selection for the contract. The acquisition team needs to ensure proper training of its SSEs to ensure a good evaluation of the technical proposal within the contractor's offer. Without proper training on how to evaluate these proposals, the government is at risk of awarding a contract to a contractor that is unable to comply with the contract scheduling and quality requirements. While the different annual workload failure rates did not show that they were statistically different than the total contract failure rate, the numbers did appear to have an overarching pattern. As the annual workload increased, the failure rate decreased. The Chi Square test shows that these differences could be because of randomness, and how the data was gathered for analysis, there does appear to be a trend within this data. These findings appear to be counterintuitive to what one might expect. This trend could be explained through how the MICCs were staffed. These MICC offices may have been projected to have greater dollar amounts passing through their regions because of deployments and higher operational tempos in their areas. Given this projection, the MICC offices may have been prioritized and manned with more personnel. This would allow for more people to conduct the service acquisition process more thoroughly and with greater success. This greater workload would also allow for a higher learning curve and allow the acquisition teams within these regions to better understand their jobs and responsibilities. A

counterargument to this could be that these higher workloads do not allow for the execution phase to be properly conducted. This allows for less than proper contract administration and failed contracts not properly documented on CPARS.

- **Finding 9: Contracts managed by a MICC that completed 3,501–7,000 contracts annually had the highest failure rate when compared to MICC's that completed 3,500 or fewer contracts annually.**

The MICC regions that consisted of contracting actions between 3,501–7,000 contracts annually had the highest failure rates. This category failed most commonly for quality and management of key personnel. These failures in CPARS suggest the MICCs that fall within these categories need to look at how they are executing their source selection within the execution strategy step. The MICCs need to ensure the acquisition teams are properly training their SSEs on how to evaluate the contractor's management and technical proposals. Acceptance of a contractor's proposal without proper understanding of the contract requirements raises the risk of contract failure. As discussed previously, this variable had p-value greater than 0.05, showing that its categories' failure rates were not significantly different than what would have been expected given the total contract failure rate. While not significantly different, the numbers do appear to reflect a trend that as the workload increases, the failure rate also increases. While the Chi Square test shows that these differences may be from randomness within the data population, this trend does allow the researchers to speculate. It appears that as the contracting workload increases, the number of trained personnel for government contracting is not being adequately increased. GAO (2013b) and Gansler (2011) have both identified that without the proper trained personnel to conduct the contracting process, the government runs the risk of contract failure. As discussed in Chapter I, history has shown dramatic increase in service contracting over the past 21 years (Ellman et al., 2011). With this increase, it is important to increase the proper workforce as well.

- **Finding 10: The category with 0–50 1102 billets had the highest failure rate.**

MICC regions that had 0–50 1102 billets had the highest failure rate at 5.44%. Its most common reason for failing was quality. These numbers may suggest the acquisition team within these categories need to focus their attention on the Execution Phase. Within this phase the teams need to examine how they are training their SSEs. These numbers may suggest they are not awarding the contract to the best contractor or their requirements for this area are not attainable by the contractor. While this variable was shown not to be statistically significant, the results of the research did appear to have an obvious trend. This data showed as the authorized 1102 billets increased, the failure rate decreased. While the Chi Square test p-value states these results may be from randomness, it appears to be a result one would expect to find. One can speculate that MICC offices with higher authorized 1102 billets also have more 1102 specialists in the position, whether all the positions are filled or not. The results of this research support the GAO (2013b) and report Gansler (2011) published stating, without properly trained personnel to conduct the contract process the government runs the risk of contract failure.

- **Finding 11: The group of 1102 billets that were 60–70% filled had the highest failure rate among this variable's categories.**

The 1102 billet percentage category that showed 60–70% filled had the highest failure rate at 4.94%. It showed to fail most often because of schedule and cost control. These numbers suggest that MICCs within these fill rates need to focus on the execution strategy step to mitigate their risk of future failures in the same areas. The MICCs need to look at how they are training their SSEs in the areas of evaluating the cost and technical proposals. These two proposals lay out how the contractor plans to fulfill the contracts requirements in forecasting cost and meeting scheduling requirements. These proposals show if the contractor really understands the contract requirements. If the contract is awarded to a contractor that does not understand the contract requirements the

government is at higher risk for cost overruns and schedule delays. This variable's failure rates again proved to be not significantly different than the total contract failure rate. The Chi Square test showed that these differences in the variables failure rates could be due to randomness or how the data was gathered. The results of this analysis had a straightforward trend that is hard to ignore. The trend in this analysis showed as the percentage for billets filled increased, the failure rate decreased. This trend again supports the GAO (2013b) and Gansler (2011) claim of the importance of having trained personnel in the positions for proper contracting process phases. Another trend identified in this variable was that the cost control failures decreased as the billets are filled to more appropriate levels. The direction of these numbers show, as there are less trained personnel, the government does run the risk of paying too much and higher risk of contract failure.

G. SUMMARY

This chapter began by reviewing an overview of the data. This chapter then analyzed the data to answer the research questions. The chapter covered how the research used the Chi Square test on the data. This showed if the average total contract failure rate was applied across the categories of the variables whether there would be a significant difference from what was actually captured within the data. The final section in this chapter was a discussion of results and managerial implications. This discussed in further detail what was found in the analysis of the variables' failure rates and categories' reasons for failures. Chapter V covers the summary of the research, conclusion of the findings, and areas for further research to enhance the knowledge of service contracting.

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V. SUMMARY, CONCLUSION, AND AREAS FOR FURTHER RESEARCH

A. SUMMARY

Over the last few decades, services contracting has continued to grow. Contracting for services has grown in relation to product contracting over the last 21 years, and was the fastest growing area for DoD contract spending at a growth rate of 6.1% (Ellman et al., 2011). This growth in dollars spent has brought increased political attention and scrutiny.

Contract management has been listed on the GAO's High Risk Series since 1992 (GAO, 2013a). Problems in contract administration have also resulted in 142 reports completed by the DoD IG in five years (Burton, 2009). Gansler (2011) identified that most current regulations, policies, training, standards, education, and management structures re set up to optimize product acquisition, and only a few focused on the optimization of service acquisition.

The DoD has responded to these problems to improve service acquisition in several different ways. USD AT&L Frank Kendall released BBP 2.0 to place senior leadership to manage service acquisitions. The DoD also forced the components to adopt a standardization of taxonomy in order to better classify acquisitions (GAO, 2013b).

With these improvements, service acquisitions still have problems. The problems could be from a lack of standard definition for success. With the differing goals and objectives of the different stakeholders, a proxy definition of success is needed to measure success. Since contract success and failure is recorded through CPARS, this information is used for the proxy definition for success.

B. CONCLUSION

1. Research Findings

The purpose of this research was to identify variables in the service contracting process that promote successful service contracts. To identify these variables, the research was focused on answering these four research questions:

- Do the types of services being acquired affect the success of a service contract?
- Do the contractual amounts affect the success of a service contract?
- Does the level of competition used affect the success of a service contract?
- Does the contract type affect the success of a services contract?

In answering the first research question, it was discovered that the types of services being acquired is not a significant influencer on the success of a service contract ($p = .761$). The category of S-type services (utilities and housekeeping) did have the highest failure rate at 3.77%, and is closely followed by J-type services (maintenance, repair, and rebuilding of equipment) at 3.45%, R-type services (professional administrative and management support) at 2.72%, and D-type services (automatic data processing and telecommunications) at 0%. Though the failure rates were different across the service types this research examined, the overall failure rate was close to the rate expected for the types of services examined in this research.

In answering the second research question, the data indicated that a statistically significant relationship existed between contractual amounts and the success of a service contract ($p=.036$). Contracts ranging from $50 million–$1 billion had a failure rate over three times higher than the lower dollar categories (8.70% vs. 2.86%). It was also found that the single highest point of failure in the failing contracts was cost control at six references out of the eight failures. Cost control was noted as a source of failure six times, which was twice as often as the next most common source of failure which was schedule at three times.

In answering the third research question, the data indicated that there was not a statistically significant relationship between the level of competition used and the success of a service contract (p= 1.00). Competitive and non-competitive contracts did have failure rates at 3.15% and 2.91%, respectively. Though the failure rates were different between the level of competition used, the overall failure rate was close to the rate expected for the types of services examined in this research.

Lastly, in answering the fourth research question, the data indicated that there is a statistically significant relationship between the contract type and the success of a service contract (p= .009). Contracts that used a combination of CPFF, FFP, and CPAF had the highest failure rate in the database at 50%, although it must be stated that the sample size of combination contracts was over 130 times smaller than the largest population in the same category (FFP-522 entries). The stated reason the contracts were labeled as a failure in all of the combination contracts was schedule and cost control. The data also shows that the Army uses firm fixed price contracts for services over five times more often than the next most commonly used contract type. Firm fixed price contracts also have the third lowest failure rate, which indicates that firm fixed price contracts should continue to be used as often as possible because of their historically low failure rate. The results to the research questions can also be seen in Table 22.

Table 22. Contract Variables Effect on Success of a Service Contract

Contract Variables	Effect on success of a service contract
Type of Service (RJSD)	No
Contractual Amounts	Yes
Level of Competition	No
Contract Type	Yes

2. Additional Findings

While compiling the database, several additional variables were analyzed which yielded some interesting results regarding variables that influence the success of service contracts. These additional variables were failure rates by MICC, duration of contracts, contracts by fiscal year, annual contract workload in dollars, and the percent fill of authorized 1102 billets by MICC.

Of all these additional variables analyzed, only the failure rates of the contracts completed by MICCs were statistically significant ($p = .011$). The data clearly showed that Ft. Eustis had an overwhelmingly lower failure rate (0.42%) for service contracts than the other four MICCs that were analyzed. Ft. Eustis had a failure rate over four times lower than the next lowest failure rate (Ft. Bragg was 1.82%) and over 12 times lower than the highest failure rate (Ft. Hood was 5.26%). Additional analysis is needed to determine what caused these failure rates to be different among the MICCs.

3. Recommendations

Even with the low failure rate, the data showed three statistically significant relationships. Contractual amounts, contract types, and MICCs all had a p-value of less than 0.05. Contracts valued at $50 million up to $1 billion had the highest failure rate at 8.70%. Cost control was referenced six times as the

reason a contract was labeled as a failure, which suggests that contracts in this category need better procurement planning during the contracting process, as discussed in Chapter IV. Contract types that used a combination type contract had the largest failure rate of any of the other contract types at 50%. CPIF and CPAF also had high failure rates. This suggests that these contracts needed better procurement planning and solicitation planning. These two contracting phases is where the requirements of the services are examined and contract vehicles chosen. The SOW and project scope needs to be developed and matured enough to allow for FFP contract to be accepted by the contractor in both these areas. This high failure rate also suggests that using a combination type contract should be avoided, since it has a high likelihood of failure. Fort Eustis had the lowest failure rate of any of the MICCs examined in this research at 0.42%; as seen in Chapter IV, this could be because of a lack of trained personnel to adequately enforce proper contract administration. This could also be from proper manning with adequately trained personnel allowing for adequate contract management.

C. AREAS FOR FURTHER RESEARCH

Additional research would be valuable in several areas to further define the management levers that drive success in service contracts. The database used in this research focused heavily on outcome successes defined by Hagan, Spede, and Sutton (2012). As such, expanding this research to include the DAWIA training profile, numbers of assigned personnel, and the number of CORs the MICCs use would add significant insight to this research. This research could also be expanded to include other DoD organizations since the contracts analyzed in this report are only Army service contracts.

Additional research would also be useful in analyzing a larger number of contracts that received either an unsatisfactory or marginal rating. Examining all the contracts in the PPIRS-RC database that receive a failure label might yield useful results when combined with this study.

While conducting preparation for this research, a large amount of information was found on how government contracting has historically been unsuccessful. This, along with the GAO's placement of contract management on the High Risk list since 1992, causes the expectation of a high service contract failure rate. This data contained 715 contracts with only 22 total contract failures. This set the total contract failure rate at 3.08%. This suggests that additional analysis is needed to determine if the CPARS database is accurately capturing the performance of a service contract. The results found in this research are all based on CPARS entries, which could be biased because of a conflict of interest. This conflict of interest is created since whatever rating the Assessing Official gives to a contract may be a reflection in the way that person structured or managed the contract. This could potentially cause the rating a contractor receives to be higher than it should have actually received. The findings in this report, combined with a service quality gap analysis, would add valuable insight into what makes service contracts successful. The service quality gap analysis would reveal the accuracy of the rating a contact received in CPARS, and would be useful in determining if CPARS accurately captures a contracts performance.

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APPENDIX

These are CPAR Evaluation Ratings and Definitions from the Department of Defense *Contractor Performance Assessment Reporting System* policy guide.

Evaluation Ratings Definitions (Excluding Utilization of Small Business)

Rating	Definition	Note
Exceptional	Performance meets contractual requirements and exceeds many to the Government's benefit. The contractual performance of the element or sub-element being assessed was accomplished with few minor problems for which corrective actions taken by the contractor was highly effective.	To justify an Exceptional rating, identify multiple significant events and state how they were of benefit to the Government. A singular benefit, however, could be of such magnitude that it alone constitutes an Exceptional rating. Also, there should have been NO significant weaknesses identified.
Very Good	Performance meets contractual requirements and exceeds some to the Government's benefit. The contractual performance of the element or sub-element being assessed was accomplished with some minor problems for which corrective actions taken by the contractor was effective.	To justify a Very Good rating, identify a significant event and state how it was a benefit to the Government. There should have been no significant weaknesses identified.
Satisfactory	Performance meets contractual requirements. The contractual performance of the element or sub-element contains some minor problems for which corrective actions taken by the contractor appear or were satisfactory.	To justify a Satisfactory rating, there should have been only minor problems, or major problems the contractor recovered from without impact to the contract. There should have been NO significant weaknesses identified. A fundamental principle of assigning ratings is that contractors will not be assessed a rating lower than Satisfactory solely for not performing beyond the requirements of the contract.
Marginal	Performance does not meet some contractual requirements. The contractual performance of the element or sub-element being assessed reflects a serious problem for which the contractor has not yet identified corrective actions. The contractor's proposed actions appear only marginally effective or were not fully implemented.	To justify Marginal performance, identify a significant event in each category that the contractor had trouble overcoming and state how it impacted the Government. A Marginal rating should be supported by referencing the management tool that notified the contractor of the contractual deficiency (e.g., management, quality, safety, or environmental deficiency report or letter).
Unsatisfactory	Performance does not meet most contractual requirements and recovery is not likely in a timely manner. The contractual performance of the element or sub-element contains a serious problem(s) for which the contractor's corrective actions appear or were ineffective.	To justify an Unsatisfactory rating, identify multiple significant events in each category that the contractor had trouble overcoming and state how it impacted the Government. A singular problem, however, could be of such serious magnitude that it alone constitutes an unsatisfactory rating. An Unsatisfactory rating should be supported by referencing the management tools used to notify the contractor of the contractual deficiencies (e.g., management, quality, safety, or environmental deficiency reports, or letters).

NOTE 1: Plus or minus signs may be used to indicate an improving (+) or worsening (-) trend insufficient to change the assessment status.
NOTE 2: N/A (not applicable) should be used if the ratings are not going to be applied to a particular area for evaluation.

Evaluation Ratings Definitions (Utilization of Small Business)

Rating	Definition	Note
Exceptional	Exceeded all negotiated subcontracting goals or exceeded at least one goal and met all of the other negotiated subcontracting goals for the current period. Had exceptional success with initiatives to assist, promote, and utilize small business (SB), small disadvantaged business (SDB), women-owned small business (WOSB), HUBZone small business, veteran-owned small business (VOSB) and service disabled veteran owned small business (SDVOSB). Complied with FAR 52.219-8, Utilization of Small Business Concerns. Exceeded any other small business participation requirements incorporated in the contract, including the use of small businesses in mission critical aspects of the program. Went above and beyond the required elements of the subcontracting plan and other small business requirements of the contract. Completed and submitted Individual Subcontract Reports and/or Summary Subcontract Reports in an accurate and timely manner.	To justify an Exceptional rating, identify multiple significant events and state how they were a benefit to small business utilization. A singular benefit, however, could be of such magnitude that it constitutes an Exceptional rating. Ensure that small businesses are given meaningful, innovative work directly related to the project, rather than peripheral work, such as cleaning offices, supplies, landscaping, etc. Also, there should have been no significant weaknesses identified.
Very Good	Met all of the negotiated subcontracting goals in the traditional socio-economic categories (SB, SDB and WOSB) and met at least one of the other socio-economic goals (HUBZone, VOSB, SDVOSB) for the current period. Had significant success with initiatives to assist, promote and utilize SB, SDB, WOSB, HUBZone, VOSB, and SDVOSB. Complied with FAR 52.219-8, Utilization of Small Business Concerns. Met or exceeded any other small business participation requirements incorporated in the contract, including the use of small businesses in mission critical aspects of the program. Endeavored to go above and beyond the required elements of the subcontracting plan. Completed and submitted Individual Subcontract Reports and/or Summary Subcontract Reports in an accurate and timely manner.	To justify a Very Good rating, identify a significant event and state how they were a benefit to small business utilization. Ensure that small businesses are given meaningful, innovative work directly related to the project, rather than peripheral work, such as cleaning offices, supplies, landscaping, etc. There should be no significant weaknesses identified.
Satisfactory	Demonstrated a good faith effort to meet all of the negotiated subcontracting goals in the various socio-economic categories for the current period. Complied with FAR 52.219-8, Utilization of Small Business Concerns. Met any other small business participation requirements	To justify a Satisfactory rating, there should have been only minor problems, or major problems the contractor has addressed or taken corrective action. There should have been no significant weaknesses identified. A fundamental principle of assigning ratings is that contractors will not be assessed a rating lower than Satisfactory solely for not

	included in the contract. Fulfilled the requirements of the subcontracting plan included in the contract. Completed and submitted Individual Subcontract Reports and/or Summary Subcontract Reports in an accurate and timely manner.	performing beyond the requirements of the contract.
Marginal	Deficient in meeting key subcontracting plan elements. Deficient in complying with FAR 52.219-8, Utilization of Small Business Concerns, and any other small business participation requirements in the contract. Did not submit Individual Subcontract Reports and/or Summary Subcontract Reports in an accurate or timely manner. Failed to satisfy one or more requirements of a corrective action plan currently in place; however, does show an interest in bringing performance to a satisfactory level and has demonstrated a commitment to apply the necessary resources to do so. Required a corrective action plan.	To justify Marginal performance, identify a significant event that the contractor had trouble overcoming and how it impacted small business utilization. A Marginal rating should be supported by referencing the actions taken by the government that notified the contractor of the contractual deficiency.
Unsatisfactory	Noncompliant with FAR 52.219-8 and 52.219-9, and any other small business participation requirements in the contract. Did not submit Individual Subcontract Reports and/or Summary Subcontract Reports in an accurate or timely manner. Showed little interest in bringing performance to a satisfactory level or is generally uncooperative. Required a corrective action plan.	To justify an Unsatisfactory rating, identify multiple significant events that the contractor had trouble overcoming and state how it impacted small business utilization. A singular problem, however, could be of such serious magnitude that it alone constitutes an Unsatisfactory rating. An Unsatisfactory rating should be supported by referencing the actions taken by the government to notify the contractor of the deficiencies. When an Unsatisfactory rating is justified, the contracting officer must consider whether the contractor made a good faith effort to comply with the requirements of the subcontracting plan required by FAR 52.219-9 and follow the procedures outlined in FAR 52.219-16, Liquidated Damages-Subcontracting Plan.

NOTE 1: Plus or minus signs may be used to indicate an improving (+) or worsening (-) trend insufficient to change assessment status.

NOTE 2: For subcontracting plans under the DoD Comprehensive Small Business Subcontracting Plan (Test Program), DFARS 252.219-7004 (deviation), the ratings entered in CPARS shall mirror those assigned by the Defense Contract Management Agency who is responsible for monitoring such plans.

NOTE 3: Generally, zero percent is not a goal unless the Contracting Officer determined when negotiating the subcontracting plan that no subcontracting opportunities exist in a particular socio-economic category. In such cases, the contractor shall be considered to have met the goal for any socio-economic category where the goal negotiated in the plan was zero.

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